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# Grigmal Articles.

### HISTORY OF I M S

COURTS-MARTIAL \*

Nothing extenuate, Nor set down aught in malice— Shakespeare, Othello, Act V, Scene 11

BY D G CRAWFORD MB,

LT COL, IMS (retd)

It has always been the custom, among all civilized powers, that offences against discipline, committed by members of their armed forces, naval or military, should be tried by special tribunals, or Courts-martial Such special tribunals can hardly be considered a privilege of the accused, for many charges, punishable with severity by these special courts, would be considered trivial, or even dismissed, by the regular criminal courts

As regards offences committed by men subject to military law, not specially of a military character, but such as are ordinarily tried by the regular courts, custom has varied from time to time. In the eighteenth century such cases as murder or robbery by soldiers or *sipahis* were usually tried by Courts-martial, whereas in more modern times they are left to be dealt with by the ordinary criminal law

During the earlier part of the nineteenth century, and indeed up to the mutiny, trial of officers by Courts-martial was of very frequent occurrence In the thirties and forties of last century the weekly issues of General Orders, and the weekly press, teem with reports of such trials, sometimes half-a-dozen or more in The most common charges were drunkenness, duelling, insubordination, absence without leave, the wide term of "conduct unbecoming to an officer and a gentleman," and, less frequently, pecuniary defalcations The last class, indeed, seldom appear to have been cases of deliberate fraud, but usually originated in carelessness, in leaving money matters to subordinates, or in simple inability to keep accurate accounts

At the present day, the trial of an officer by Court-martial is of rare occurrence Many causes have contributed to this great change For one thing, officers come out to India at a later age A hundred years ago cadets, and civilians also, often come out at about sixteen, an age at which they would have been better suited to the discipline of a public school than to that of the army Asst-Surgeons were often not more than twenty when they first joined Duelling died out before the mutiny Over-indulgence in alcohol has greatly decreased during the last century among all classes, and m none to a greater extent than

In that which officers the army The Accounts Department now keep a much closer and more frequent scrutiny over public accounts, and appointments such as postmasterships and registrarships, which involve dealing with public money, are not now held by military or medical officers. And it was the custom to bring to trial by Court-martial numerous cases which, at the present time, would be dealt with departmentally by senior officers, and which would often, if any punishment were considered necessary, be met by a mere reprimand

In these frequent trials by Court-martial the Medical Service seems to have had its full share The number of officers of the I M S cashiered, dismissed, or discharged by Court-martial (the term cashiered is less frequently used than the other two) has not been large Excluding cases in which the sentence was remitted, and the offender reinstated, but including some entered as "removed from the service," in which it is not stated that such removal was due to the sentence of a Court-martial, the total is only some twenty-nine cases out of a total of about 5,600 officers, or just over one in two-hundred, one-half per cent.

 Bengal
 13 out of about
 2,350

 Madras
 13
 ,,
 1,400

 Bombay
 3
 ,,
 950

 Junior I M S , none
 ,,
 900

 Total
 29
 5,600

It is now more than thirty years since any officer of the IMS was cashiered or dismissed

But the number of culprits actually dismissed from the army bears a very small proportion to the number of cases tried. Acquittal was frequent, in many cases, indeed, trials were held on the demand of the accused, in order to clear his character, and conviction by no means necessarily involved dismissal. Sentences of less severity were frequently passed, such as suspension from rank and pay, for periods varying from two years down to three months, removal from appointment, loss of seniority, by being reduced a certain number of places on the list, and not unfrequently simple reprimand

In this chapter it is proposed to give an account of some of the more interesting cases in which medical officers have been tried by Court-martial, showing the nature of the offences thus tried.

instances of varying sentences, etc

The first case quoted is the most interesting of all, as the only instance of a summary or "drumhead" Court-martial, in which detection of the offence was followed by trial, and sentence by execution, without the usual delays of the law, and also as the only instance of the infliction of the death penalty Whether the culprit had ever actually been employed as a Medical Officer in the Service is, to say the least of it, doubtful He certainly never received a regular appointment by warrant as an Asst.-Surgeon He had

<sup>[\*</sup> Being a chapter from Lt Col Crawford's coming History of the Indian Medical Service.—ED]

applied for employment at Fort St David, but apparently did not get it there Cailland appointed him to attend the hospital at Trichinopoly, but states that he never took up the post In fact, he appears to have been only a candidate for employment, or umedwar

On 28th December 1757, a French Asst-Surgeon, who had taken service under the English, was hanged at Trichinopoly for treason The folaccount of this affair is taken from Orme's History of Indostan, Vol II, p 289, the beginning of Book IX

"The new year opened in the Carnatic with as little activity as the last had closed The French troops remained in Pondicherry, waiting the arrival of their expected armaments from Europe, during which, Mr Soupre, as he says in a memoir he has published, entered into a negotiation with two Jemautdars of the English Sepoys to surprize Tritchi nopoly, by means of the French prisoners Four hundred were in confinement in the city, and 50 or 60 had at various times been received into the English service, and in the end of December, soon after Calliaud returned from Madras, two of the enlisted Frenchmen accused one De la Forge, who had been accepted as a Surgeon's mate, that he had tampered with them to concur in a project, by which the foreigners in the service of the garrison were to murder the English guards in the night, then open the prisons, arm the prisoners, and with their assistance, overpower the rest of the troops Four other Frenchmen avowed the same conver sation with De la Forge, who, with much obstinacy, denied that he had ever spoken one word to any of them he was, however, hanged two days after his trial. This might have been the first opening of Mr Soupire's scheme, although he says nothing of it, but nothing was discovered of his conspiracy with the sepoys, which he seems to have protracted until the end of April'

The original account of this affair is found in two letters from Captain Caillaud, (1) commanding at Trichinopoly, to the Governors of Fort St David and Madras, dated 28th December 1757 and January 1758, respectively The name of the unfortunate Frenchman appears to have been La Forge, not Dela Forge, and whether he was ever actually employed in the British service seems somewhat doubtful Caillaud's letters are as follows (2)

"To Alexander Wynch, Esq., Governor of Fort St. David Dean Sir,—I was informed last night of a design amongst the French soldiers here (entertained in our service) of endeavouring to surprise the garrison, the chief promoter of this scheme was one Bernard, alias La Forge, who came to your settlement from Pondicherry as Surgeon some time last April or May, and along with him a companion who calls himself an engineer, and I believe may still be with you, the surgeon came here some time ago, not being employed (as he said he could wish) at Fort St David, he further said his intention was to go to Dindigul, unless I had any commands for him, I told him to wait thinking perhaps in his profession I might find him of use, however, he had other views for himself it seems, the fact of having endeavoured to seduce many of the Frenchmen to surprise the garrison, was fully proved on him this morning, and for which I hung him this afternoon The good of the servee required an immediate example, so I did not wait for orders, the particulars of this whole affair will pass through your hands in a few days, but this is chiefly to inform you of what we were made acquaint ed with this morning at the court of enquiry by his principal agent here in the affair, that this La Forge had in confidence assured him he had the same designs upon your garrison while there, that he had wrote to Pondicherry about it, and that his comrade the engineer was in the secret, I thought the sooner I could inform you of this the better, that you may take measures accordingly, perhaps by first having him strictly watched you may find out more than if he was imme-diately confined, of this, however, you are the best judge "I have received your two last favours and shall with

thanks answer them when more at lessure, this affair has given me and will give me yet a day or two more trouble, however, everything is safe and quiet and I am as usual very much

TRICHINOPOLY

Your obliged humble servant "

December 28th, 1757

- "To the Honourable George Pigot, Presdt and Governor, etc, at Madras
- "SIR,-I have now the honour to lay before you the pro ceedings of a court of enquiry held here on the 28th instant in consequence of an information given me by two French men of a design formed by some of their countrymen (deser ters and others whom I some time ago had taken out of prison when before Madura) to surprise the garrison, and endeavour to make themselves masters of the place, one of the principal actors in this tragedy was to have been one La Forge, a Surgeon, who had come here from Fort St David a few days before I set out for Madras he produced me a discharge from the French service, dated in April last, and informed me that he and another of his comrades with a discharge also had left about that time Pondicherry and came to Fort St David, that his comrade had found service as engineer, that he himself had attended awhile in the hospital, but on some disagreement with the surgeon had leave to come away, that he came then to Tanjore, where finding no employment, he came to offer his services here and if not wanted that I would give him leave to go to Dindigul this was his story
- "The want sometimes of people in his profession made me desire him to stay, and that he might attend our hospital if anything offered, and that (3) our surgeon found him capable and diligent, I might, perhaps, find an opportunity of employing him, on my return from Madras, our surgeon informed me, he never once attended the hospital, on which I proposed sending him about his business, but deferred it as I had some thing of more consequence that took my time and attention
- "I may now refer you, Sir, to the proceeding (4) of the Court for the remainder of the affair, and humbly hope my determination after strict examination of ordering the imme diate execution of the villain, may not be thought by you a rash action, or too great an exertion of power, or a breach of respect I owe you Sir in not waiting for your orders, but I own the necessity of an immediate example appeared to me in so strong a light, that I should have thought myself deficient in my duty had I not done it, if unfortunately your opinion of the affair should differ from mine, I must think myself to blame, but hope even in that case you will consider it as well meant for the good of the service, an action certainly not of choice, but seemingly to me of absolute
- "The Court continues sitting every day in order to sift the affair to the bottom, and to find out as many as possibly we can who were accomplices, or who knowing of it did not acquaint their officers, the crime is of such a nature as cannot be taken cognisance of by a regimental Court martial, therefore if you choose they should be tried here, an order must be sent to enable us to hold a general one you will also be pleased to inform me if you will confirm my offers of pardon to those who will turn evidence against the rest the only way I can think of to come at the truth Gille Lalot is one and I believe hath told the most he knows Vadeboncour was another to whom I made the same con ditional offers, but he is a villain, and in the course of exa mination shows he knows much more than he will confess however if you will please to confirm me that power, if they are to be tried here, I will endeavour to make the best of it
- "A judge advocate will also be necessary and as the sending up one may be attended with inconvenience, I beg leave to mention Mr Alexander Boswell (5) as one fit for that office, if you will please to send him a deputation
- "The articles of war mention for the East Indies, that there must be nine officers to constitute a general Court martial, we are but eight here, if you think proper to honour one of the volunteers with a commission or order for appoint ment, we shall have a sufficient number
- "In the court of enquiry you will observe that passage in Gille Lalot's evidence where he says that La Forge in confidence told him he had the same design at Fort St David, and how he proposed to effect it, and that his comrade knew

of it as I hear that man is still employed there I gave Mr Wynch immediate notice of it that he might take the proper precautions with regard to him

TRICHINOPOLY, January 1758"

It appears very doubtful whether the unfortunate La Forge was ever actually employed as a Medical Officer in the Company's service, either at Fort St David or at Trichinopoly consider that he was so employed, then each of the three great public medical services has had one of its members hanged Edward William Pritchard, the notorious Glasgow poisoner, had served in the Navy He was born in 1825, took the diploma of M R C S in 1846, and entered the Navy as Assistant-Surgeon in the same year, but resigned in 1847 After trying practice in several other places, he settled in Glasgow in In February 1865, he poisoned his wife and mother-in-law with antimony, was tried, condemned, and was executed at Glasgow on 28th July 1865, this being the last public execution in that town And in December 1887 a retired Surgeon-Major of the A M D was sentenced to death at Cork for poisoning his wife with arsenic, and subsequently executed accounts of the whole case may be found in the Lancet and British Medical Journal of the time

The next case given, that of Surgeon-Major Francis Balladon Thomas, is also noteworthy, on account of the rank of the accused, and of the nature of the charge Dr Thomas had held the post of Residency Surgeon, Lucknow, the most lucrative civil medical post in the Company's service, and at the time of his trial was Surgeon-Major to the First Brigade, the highest military appointment, with the single exception of that of Surgeon-General, open to a medical officer The case was one which, at the present day, would not be brought before a Court-martial, or any other Court, but would probably be dealt with departmentally, perhaps by removal of the accused from his appointment Considering that Dr Thomas was acquitted, though not entirely exonerated, on three out of the four charges against him, and partly also on the fourth, as the Court found that the word false could not be established, one cannot help thinking that discharge from the service was a severe punishment Dismissal did not, at that date, as it does now, involve forfeiture of pension, for no officer had a right to pension then It would also be interesting to know what were the scandalous and highly indecent terms Dr Thomas used in drawing up his bill

"Minutes of Council, 26th January 1785
"Case 4—Proceedings of a General Court martial held
in Fort William, from the 15th December 1784 to the 15th

January 1785

"Crime—Mr Francis Balladon Thomas, Surgeon Major to the First Brigade, and late Surgeon to the Residency of Lucknow, ordered into arrest by the Commander-in Chief, for the following charges exhibited against him by Mr J Bristow, late Resident at Lucknow
"I accuse Mr F B Thomas, Surgeon Major to the First Brigade, and late Surgeon to the Residency of Lucknow, of conduct and behaviour unbecoming of a Gentleman in

having demanded from me payment of a Bill for medicines and personal attendance whilst I was Resident at Lucknow, in doing which he has acted unlike a Gentleman in the following

particulars
"1st—For demanding from me payment for the said
here at the same time, in Bill, notwithstanding his having been at the same time, in the receipt of allowances from the Company as Surgeon to

the Residency

"2nd—Supposing Mr Thomas to have had a right to make some charge, he has behaved unlike a Gentleman in demanding exorbitantly in one or more instances in the Bill

"3rd—He has acted unlike a Gentleman in drawing up or detailing the said Bill in false, scandalous, and indecent terms, in several particulars, with an apparent design and tendency to injure my character, and destroy the peace of

my family

"4th—Supposing his charge had been reasonable, and had been occasioned by the causes alleged in his Bill, he has departed from the conduct of a Gentleman in divulging and publishing those causes in breach of confidence, and in violation of the sense of honour and fidelity, held sacred among Gentlemen of his profession"

(A true copy) (Sd)

P MURRAY,

Adjutant General

(Sd) J BRISTOW

"Finding Article 1st — The proof of demanding payment of the Bill is before the Court, and although they are of opinion that act does not subject Mr Thomas to the charge of conduct and behaviour unbecoming the character of a Gentleman, yet they think it highly reprehensible in a Surgeon in the H C's service to make any charge for Medical attendance

or medicines to a Company's servant
"Article 2nd—The Court is of opinion the charges are very exorbitant, but as there is no established rule for charge in the Medical Profession in this country, they acquit Mr Thomas of ungentlemanlike behaviour in this particular "Article 3rd—The Court'is of opinion the Bill is drawn up and detailed in largest and opinion the Bill is drawn.

up and detailed, in language most scandalous, and highly mdecent, and upon this part of the charge, they do find the Prisoner Mr F B Thomas to be guilty of conduct and behaviour unbecoming the character of a Gentleman "The charge of false with respect to Mr Briston's disorder,

does not appear to the Court to be established, but, in the case of the Bramin, said in the Bill to have been wounded by his people, it appears to them that this man was wounded by Sepoys without the knowledge or participation of Mr Bristow

" Article 4th - The Court acquit Mr F B Thomas of this

part of the charge "Sentence—The Court having found Mr F B Thomas gulty of conduct and behaviour unbecoming the character of a Gentleman, in breach of the 2nd Article of the 15th Section of the Articles of War, do sentence him to be Discharged the Company's Service, and is hereby discharged accordingly

> (Signed) W DUFF. Lt Col., President "

Dr Thomas appears to have remained in India for some years after his dismissal The Calcutta Gazette of 15th November 1787 contains an account of an action for illegal arrest brought by him against Mr Bristow in the Calcutta Supreme Court, which awarded him damages to the extent of five thousand rupees

In 1787 a dispute took place between Anthony Toomey, Surgeon to the Factory at Tellicherri, and Major Nugent and Captain Bannatyne, of the fifth Battalion of Sepoys, stationed there, about the removal of sick men from the regimental barracks to the General Hospital at Tellicherri, of which Toomey was in charge Toomey alleged that cases which required treatment in the General Hospital were not sent to it A somewhat acrimonious dispute followed Finally Captain

Bannatyne demanded that Toomey should be tried by Court-martial for bringing a false charge The Tellicherri Council referred against him the matter for decision to Head-quarters The decision given was that Toomey, as Surgeon to the Settlement, a civil appointment, was not amenable to military law, and so far was in his favour As regards the original matter in dispute, the decision was against him, the Bombay Council stating that the removal of sick sipahis to the General Hospital lay entirely in the discretion of the Commandant and the Surgeon of the Battalion This is distinctly laid down in the Bombay G O of 13th January 1785, to which reference is made, the same G O appoints Messrs Lloyd and Lawrence as Surgeons to the Sepoy The decision of the Council is given in their General Department letter to Tellicherri, dated 18th March 1787, as follows (6)

"Captain Bannatyne must be acquainted that if he has any complaints to make of Mr Toomey, he should lay them before you, as we do not deem the Surgeon of the Settle before you, as we do not deem the Surgeon of the Settle ment amenable to Military Law. It must at the same time be signified to Mr Toomey that his province with respect to patients to be removed from the Battahon to the General Hospital, is pointed out in General Orders of the 13th January 1785, conformably to which such sepoys whose cases are chirurgical or otherwise very particular, will be put under his care at the discretion of the Commandant and the Batta lion Doctor '

Departmental enquiries were not unknown in the eighteenth century The conduct of Assistant-Surgeon Thomas Martin, 2nd Battalion Artillery, was the subject of a long enquiry by the Calcutta Medical Board, embodied in their proceedings of The Board found that his 23rd October 1789 treatment of a patient, Corporal Henry Hugh, by injudicious bleeding and omission to Peruvian bark, was injudicious, removed him from his appointment as Assistant-Surgeon to the Artillery, and ordered him to attend the Presidency General Hospital as a pupil until further Eight months later, on 21st July 1790, he was posted to the 5th European Battalion

The Proceedings of the Calcutta Medical Board of 25th April 1791, contain a report, extracted from G O of 18th April 1791, of a Court-martial held at Fort William on 26th March 1791, on Surgeon Thomas Phillips, of the 5th European Battalion, for assaulting Asst-Surgeon Thomas Martin Phillips was acquitted on this occasion, but was again tried by Court-martial, a month later, on 26th April 1791, and sentenced to six months' suspension, for having insulted the members of the Court at the previous trial remarks of the Court in this case are given at some length by Hough (p 458)

by Mr P—(the prosecutor), is an insult of the grossest kind upon the proceedings of this Court, replete with misrepresentation, and a reflection on the dignity of Courts martial, and that after the repeated reprimands Mr P—has already received from the Court, and experiencing their lenity to so great a degree as he has done by several instances of his conduct being hitherto overlooked, they find themselves under the indispensable necessity of ordering him into arrest for his contumelious disrespectful conduct.

"The Court are further of opinion that Mr P-'s delivering into the Court, the written paper which he called a protest, saying he had nothing now to offer in reply and retiring imme diately, instead of making his reply as was expected, and for which leave was granted by the Court at his own request, is a serious aggravation of the offence that preceded it, and is a menace which seems intended by him to bias their judg ment in passing sentence on Mr M— Taking these matters, together with the intemperate and contemptuous conduct of Mr P—throughout the whole of this trial into their most serious and solemn contemplation, and feeling the necessity of discouraging in the most exemplary manner all sorts of intemperance and contempt towards the only tribunal that exists for the preservation of discipline in the Army, they pronounce Mr P—, Surgeon of the 5th European Battalion, guilty of a breach of the 13th Article of the 12th Section of the Articles of War, and they sentence him, and he is hereby sentenced to be suspended from his rank, pay, and allow ances in the H C's service for the term of six months

M—is evidently the unfortunate Asst-He seems to have got Surgeon Thomas Martin off on the occasion referred to above, but was cashiered two years later, by a Court-martial held at Barhampur on 16th February 1793, for cheating by passing two separate sets of pay bills for one month

A Military Letter from Fort St George, dated 25th May 1792, states in paras 31, 32

"Surgeon Blackader was sentenced by a Court martial to be suspended from pay and batta for eight months for having neglected the wounded Europeans placed under his charge, but Lord Cornwallis, dissatisfied with the sentence, recommended, and in which we most readily agreed, that his suspension should be continued till Court's pleasure should be lower. He has succe been permitted to resign, and is He has since been permitted to resign, and is mentioned as a very unfit person to return to India in any capacity whatsoever "

On 14th February 1794 charges of neglect of duty were brought against William Raine, then junior Member of the Madras Medical Board, by Alexander Anderson, one of the Rame requested trial by Court-martial, on 18th February, and on 21st February was placed under arrest, pending his trial He was was removed from his Anderson acquitted appointment as Presidency Surgeon by G O 26th March, and was appointed to the Battalion of European Infantry, in the place of

M Thompson, suspended (7)

A Court of Enquiry held at Ellore on 25th December 1793, recommended that Maxwell Thompson, of the 4th 4th European Battalion, should be tried by Court-martial for gross neglect of duty and mattention to the sick of the hospital under his care" The Courtmartial found him guilty, and sentenced him to The Madras Medical suspension for six months Board, on 18th March 1794, considered him unfit for the position he held, reported him to the Court of Directors, removed him from his corps, and appointed Surgeon Alexander Anderson, himself in trouble, to the vacant post The Madras Council ordered that Thompson should not again be employed in any public capacity till the pleasure of the Court of Directors was known The Court's orders were to the effect that he should be suspended from pay and allowances for a further period of two years, in addition to the six months' suspension ordered by the Court-martial (8)

The case was reported in a Madras Military Letter, dated 25th July 1794, paras 9 to 14

"Mr Surgeon Thompson has been found guilty of having discharged several patients from the Hospital uncured, and of not having taken the necessary and proper steps that the sick under his charge might not suffer by the failure of the contractor in the stipulated Supplies of Clothing and Linen. for which he was sentenced to a suspension from Rank and Pay for six months, a punishment very inadequate to his misconduct. Had not the officer commanding the Army confirmed the sentence, we should have dismissed him from the The matter submitted to the Court, whose attention is requested to the instances adduced by the Judge Advocate of the very culpable and inhuman conduct of Mr Thompson, and to the circumstances of the dismission of Surgeon Black ader in 1792 for neglect of the wounded Europeans under his charge. The penilty will be exacted of the Hospital Contractor for his failure in the stipulated Supplies of Clothing, etc

Surgeon William Betty, of Madras, was cashieled by Court-martial on 6th October 1803, after having killed in a duel Lt-Colonel Robert Hamilton, of the Bengal Army, at Amboyna in Java, on 7th September 1802 This was a somewhat exceptional instance, such cases usually being handed over for trial to the Supreme Court Possibly the leason for Betty's trial by Court-martial was, that Amboyna was not within the jurisdiction of any of the Indian Courts Betty was restored to the service from 7th March 1805, by orders conveyed in a Letter from Court dated 18th April 1805, published in the Madras Gazette of 4th September 1805, and quoted in the Asiatic Annual Register for 1806, Part I, Chronicle, p 71

"Para 14 -We have agreed to restore to the service Mr William Betty, a Surgeon on your Establishment, who was dismissed by the sentence of a Court martial, and the General

Court have concurred in this our resolution

Para 15 —We have been influenced in our decision upon Mr Betty's case, by the peculiar circumstances of his long arrest previous to his trial, and of his having been acquitted of all the charges brought against him, except that of breaking his arrest, in which he appears to have acted more from an error in judgment than intentional disobedience, and like wise by the very strong and unanimous recommendation of the Court martial in his favour "

From the above order it appears that Betty must have been acquitted of the more serious charge, and convicted only of a more or less technical offence Presumably Hamilton was challenger and the aggressor

Asst Surgeon David Reid, of Madras, cashiered on 11th September 1813 for sending a challenge to his Commanding Officer reinstated from 12th May 1815, by G O of 29th

July 1816

Asst-Surgeon Thomas Compton, of the Bengal 4th Volunteer Battahon, then serving in Java, was cashiered on 21st December 1816, for insubordination and drunkenness, the sentence was, however, remitted by the Commander-in-Chief This case as extracted below, is included in Hough's Court-martials, page 208, where, however, only the initial letter is given

" Assr Surgeon C-, 4th Volunteer Battalion, placed in

arrest on the following charges — "1st—I or scandalous conduct at Sourabaya, on the 1st August 1816, in having gone to a public billiard room in a state of intovication, and having there in a violent manner wantonly and grossly insulted Captain Drury

12nd—For contempt of authority on the same occasion in refusing to above the order of his superior officer. Liquit Duvor

refusing to obey the order of his superior officer, Lieut Dwyer,

who had desired that he would consider himself under arrest

-For conduct unbecoming an Officer and a Gentle man on the abovementioned date, and for contempt of authority in grossly abusing, threatening, and resisting Lieut and Adjutant Christie, when communicating to him the orders of his Commanding Officer

"Finding—Guilty
Sentence—To be cashiered

The Court at the same time beg strongly to recommend him to the mercy of H E the Commander in Chief Approved and signed—Moira
"The Commander in Chief agrees fully in the considerations (apparent in the proceedings) which have reduced the

(apparent in the proceedings) which have induced the Court to intercede for lenity in this case, the sentence is accordingly remitted, but, as it would be unsafe that hospital patients should be left to the treatment of a person subject to sudden aberrations of mind, the Commander in Chief will make an application to the Governor General in Council, for putting Mr C—on the pension list

By Command, (Signed) C J DOYLE, Military Secretary "

In 1817 Asst-Surgeon Charles Pears, of Bengal. was tried by Court-martial, with the following somewhat curious result Thiscase also is taken from Hough's Court-martials, page 534 The first charge, on which the accused was acquitted, is not quoted The second charge was one of having insulted Asst-Surgeon Luxmoore, Deputy Apothecary General, and it is in the verdict that the interest of the case lies

"Finding -Not gulty of the first charge The Court proceeds to consider the second charge, but there being an equality of votes on the whole or partial guilt of the Prisoner, and the same equality in the quantum of punishment to be assigned, and the Judge Advocate General having declared his opinion that a majority of voices must concur to pronounce judgment, the Court arrest their proceedings and adjourn until the further pleasure of the Most Noble the Commander in Chief be obtained

Under the circumstance of the parity of votes the Commander in Chief is to consider the opinion of the Court

as an acquittal and confirms it as such

(Signed) HASTINGS "

Another trial given by Hough (p 532) is that of Surgeon Thomas Hart Davies, of Madras, in 1819, accused by John Douglas, acting Member of the Medical Board, of "scandalous and infamous conduct unbecoming the character of an officer and a gentleman? The Court found the prisoner "not guilty and do most fully and most honourably acquit him of the charge " Commander-in-Chief of the Madras Army, Lieut-General Sir Thomas Hislop, confirming this verdict, made some rather strong remarks to the effect that the charge should not have been Davies himself rose to be senior Member of the Medical Board some fourteen years later

It is quite unnecessary to recapitulate most of the cases of trial by Court-martial of medical officers whatever the result Only a comparative few are given, in which some point in the charge, verdict, or sentence, appears to be worthy of

On 17th August 1825, Asst-Surgeon J A D Watson, Bengal, was tried by Court-martial for unnecessarily reporting himself sick, found guilty, and sentenced to be reprimanded by the Commander-in-Chief, who remitted the sentence, as being beyond the powers of the Court

On 27th April 1829, Asst-Surgeon John Ladd, Madras, was sentenced by a Court-martial at Bellary to be cashiered for signing false muster rolls The sentence was remitted by the Commander-in-Chief on the ground that the Colonel and Adjutant had done the same, and that the signatures had been affixed as a matter of form without intent At the same time a strong warning was given that such practices must cease

On 4th November 1830, Asst-Surgeon William Jacob, Bengal, was tried by Court-martial for demanding fees for professional attendance from Lt-Colonel Dun, of the 35th B I, found guilty, and sentenced to suspension for three months

On 23rd April 1832, Surgeon C M Macleod, Bengal, was tried by Court-martial for absence without leave, and acquitted on the ground of aberration of intellect, being invalided from the date of his trial

Bengal G O. of 15th July 1834, directs the removal from their appointments of Surgeon Wood, of the 4th, and Asst-Surgeon William Jacob, of the 5th Battalion Artillery, for dressing to the Medical Board, in insubordinate terms, complaints, which were deemed frivolous, about the medicines and instruments supplied This case seems to have been dealt with by Government without formal trial was the same officer who had been suspended for three months in 1830

Bengal G O of 26th February 1839, publishes the results of a Court-martial held at Dinapur, in which an Asst-Surgeon, holding the posts of Civil Surgeon and Postmaster of Hazaribagh, was discharged the service for habitual drunkenness and embezzlement as Postmaster

Asst-Surgeon A R Morton, Bombay, was tried by Court-martial at Tatta in Sind, on 7th January 1839, for drunkenness, found guilty, and sentenced to lose eight steps The Commanderin-Chief refused to confirm the sentence as inadequate to the offence, the result being that the accused was released from arrest and sent back to duty It seems curious that the effect of ordering an inadequate punishment should have been the infliction of no punishment The same result had followed the trial of Asst -Surgeon J A D Watson mentioned above

Bombay G O of 26th August 1839, publishes the result of a Court-martial held at Khaiiak in the Persian Gulf, on Asst-Suigeon W K Williams, Bombay, serving in the Indian Navy, for striking his superior officer on 8th November He was found guilty, and sentenced to 1838 be dismissed

William Bombay Asst -Surgeon, Another Jeaffreson, was dismissed by Court-martial on 21st September 1832, for the same offence, strik-

ing his superior officer Bombay G O of 25th November 1840, publishes the result of a Court-martial on another Bombay Asst-Surgeon, serving in the Indian Navy, for indecent conduct The accused fortunately was acquitted.

In Haidarabad G O of 8th September 1840, is published a Court-martial on Surgeon Riddell, Madras, of the 5th Nizam's Infantry, for refusal to obey orders The accused was found guilty, but got off with a reprimand There must have been, presumably, considerable extenuating circumstances

Bengal G O of 14th September 1841, publishes the result of a Court-martial, held at Delhi on 1st September 1841, on Asst-Surgeon A Mackean, of the 22nd B I and Officiating Assistant Garrison Surgeon, for neglect of duty, in not visiting a patient, seriously ill, between the 6th and 12th The accused was found guilty, and re-

duced twelve places in the list

Bengal G O of 20th January 1843, gives the result of a Court-martial held on Asst-Surgeon H N Nugent, accused of neglect of duty in having left the transport on which he was ordered to embark for China Accused was found in Calcutta some time after the transport had He was found guilty, and sentenced to suspension from rank and pay for six months The sentence appears a light one, for what might have been called desertion when ordered on active

In 1850 Surgeon Donald Butter, Civil Surgeon of Benares, was Court-martialled along with Captain C G Fagan, for fraud, in their capacity as Directors of the Benares Bank Both were found guilty, and sentenced to be cashiered The Friend of India, in its issue of 30th May 1850, reporting this case, protests against the severity of the sentence, pointing out that the two accused were no worse than the other Directors, who, not being military officers, were not subject to trial by Court-martial, while all of them had been guilty of error of judgment, rather than of fraud Butter was reinstated from 8th December 1852, by G O No 140 of 16th February 1853, became Superintending Suigeon on 31st December 1854, and retired on 23rd April 1859

Fazan was also reinstated

In the Lancet of 12th February 1853 is contained a report of a Court-martial on Asst -Surgeon J E Umphelby of Bengal, held at Fort William on 2nd October 1852 The charge is decidedly curious, and it is fortunate for the reputation of the service that the accused was acquitted

"Charge—For conduct disgraceful to the character of an Officer and a Gentleman, in having, at Calcutta, on July 7th, 1852, subjected himself to the indignity of being publicly kicked by Mr A P Pennefather, a clerk, in the office of the Administrator General, without adopting any sufficient measures, either immediately or for three days, to obtain reparation for such insult. reparation for such insult

Finding -Not guilty and honourably acquitted

"Approved and confirmed

(Signed) W M GOMM, General, Commander in Chief,

SIMLA October 18th, 1852

"The Commander in Chief is glad that he is able fully to approve and confirm the honourable acquittal of Asst-Surgeon Umphelby of the disgraceful imputation brought against him, and His Excellency trusts that the painful position in which this officer has been placed will be a lesson to him to be more careful in future in the choice of his associates, and more guarded in his language and behaviour "

Five years later, however, on 23rd April 1856, Umphelby was discharged by Court-martial

The Lancet of 14th September 1861, gives the result of a Court-martial held on Asst-Surgeon H P Lawrence, Bombay, who was convicted and sentenced to be cashiered for having given a cheque, to meet which his balance was insufficient. The sentence was remitted by the Commander-in-Chief, who considered that the offence was simply technical, and that the accused had reason to suppose, when he gave the cheque, that the funds to his credit were sufficient to meet it

Cases in which an officer was charged with murder by killing another man in a duel, were usually sent for trial by the Supreme Courts, not tried by Court-martial, though Betty's case quoted

above was an exception

The earliest instance of this kind in the I M S seems to be the case of James Ford, in 1777, papers about which are preserved in the Calcutta Record A letter, dated 4th June 1777, from Captain W Crabb, commanding at Monghir, reports that Surgeon Ford had shot Lieutenant Thomas Sydney Smith in a duel Ford was sent down to Calcutta for trial by the Supreme Court On 5th December 1777, Robert Jarrett, the Company's attorney, was ordered to conduct the On 27th December Jarrett reported prosecution that Ford had been honourably acquitted (9)

Surgeon John Martin, of the Madras Medical Service, was tried for murder in 1787, and ac-Martin was a Frenchman, who had been in the service of Haidar Ali, and had deserted to the English in December 1767 The circumstances under which he came over are given In August 1786, he was placed under below(10)arrest on suspicion of complicity in a murder at Bimhpatam, and in March 1787 was sent from Vizagapatam to Madras for trial (11) In the Calcutta Gazette of 23rd August 1787, it is stated, that he had been tried at the Madras Quarter Sessions and acquitted In October he was restored to the service, and appointed Surgeon to the Foreign regiment (12) In a memorial dated Bımlıpatam, 1st January 1795, which he to the Madras Government, and which is contained in the Madras Public Proceedings of 20th February 1795 (13), he states that he entered the Company's service from that of Hardar Alı, bringing with him all Haidar's European Cavalry, as will be shewn by the records of 1767-68, and was appointed full Surgeon at once A copy of the order appointing him Surgeon from 1st December 1767 is appended He goes on to state he saw much service in the field, and was stationed in cantonments at Chicacole, Vizagapatam, Ganjam, and Aska, that in 1776, when war with France was declared, he was ordered to reside at Bimlipatam, and that after the peace he was passed over and I forgotten A copy is appended of an order, dated 29th August 1776, directing him to leave Aska and to reside at Bimlipatam during the war with France, this order states that no reflection on his character is intended, and that he will draw full man form Warrange and the will

draw full pay from Vizagapatam factory

As regards the murder, he states that in 1784 he was assaulted and robbed by one of his peons, and that this peon was himself murdered five days later, probably by one of his accomplices in the division of the spoil, that he was accused of this murder, kept a prisoner for over a year, was then acquitted by the Court at Madras, and sent back to duty. He goes on to complain that his pay had since been stopped, owing to his son's having engaged in the slave traffic, which was not then prohibited. No answer to nor orders on this petition seem to have been recorded

A letter from the Fort St George Government, dated 29th September 1767, to Colonel Joseph Smith, who was in Command of their Army in the first Mysore war against Haidar Ali, mentions that the Government had hopes of inducing many, if not all, of Haidar's European officers to desert to the English Among these officers was Dr Martin

"A Frenchman by name Le Chevalier de St Lubin who had been detained as a prisoner and ill treated by Hyder Ally, having found means to make his escape with Captain McKain, seems full of Rsentment at his ill Treatment, and has communicated to Us a project for withdrawing from Hyder Ally, all his European Horse and Foot Topasses, and Mogul Cavalry, this Project is to be conducted by one Martin, formerly in our Service at Madura, now Doctor with and much in the Confidence of Hyder Ally, and one Eley Commandant of the Portuguese and Topasses He is an officer belonging to Goa, but detained against his Will to serve Hyder Ally, consequently is much dissatisfied, as are, we understand, all his Troops" (14)

Colonel Smith, immediately after the relief of Ambur, on 8th December 1767, drove Haidar Ali from his position in front of the Fort at Vaniambadi. On this occasion the troop of French Horse serving Haidar under Captain Aumont, deserted to the English Smith reported his action, and the desertion of the French, to Fort St. George, in a letter, dated Camp Vaniambadi. 9th December 1767, and gave Martin's name among those of the officers who had come over (15)

A letter from Charles Bouchier, Governor of Madras, to Colonel Smith, dated 23rd December 1767, informs him that Martin had been admitted to the Company's Medical Service

"This will be Deliver'd to you by Mons Martin who we have entertained as a Surgeon upon our Establishment and he is to be appointed to do duty with the Corps of foreigners as soon as they are formed \* \* \* he is to receive Pay and Batta the same as our other Surgeons "[16]

In the Calcutta Gazette of 19th January 1815, is reported the trial in the Supreme Court, on 13th January, of Asst, Surgeon Walter Key, of Bombay, medical officer of the Company's Cruizer Malabar, for the murder of Lieut Passmore, of the same vessel, by killing him in a duel, on the island of Bouro, one of the Moluccas, on 22nd February 1814 Lieut Edward Searight, who

was first Lieutenant of the Malabar at the date of the duel, but had succeeded to the command by the time of the trial, was also indicted, having been Passmore's second Lieut Irwin, who seconded Key, does not seem to have been put on trial The evidence consisted chiefly of the statement of Lieut Searight, which was to the effect that Passmore had been the aggressor acquitted both prisoners Key, who was stated to be very ill at the time of the trial, died a few days later on 22nd January

Asst -Surgeon John Porter Malcolmson, Bombay, was indicted in the Bombay Supreme Court, on 25th September 1835, before the Chief Justice, Sir Herbert Compton, and Sir John Awdry, Puisne Judge, for the murder of Captain Alexander Urquhart, at Poona, on 18th July, by shooting him in a duel Mrs Malcolmson appears to have been the cause of the duel Malcolmson was wounded in the hand, got tetanus, and re-The two seconds, Major Foster Stalker and Lieutenant James McDonnell, and Asst-Surgeon James Don, were also put on trial prisoners offered no defence When Awdry began to deliver the charge to the jury, the foreman stated that the jury had made up then minds to acquit all the prisoners In accepting this veidict, Sii John Awdry remarked that Don, who had not been present at the duel, but had been summoned after it was over, should never have been put on Don rose to be a Member of the Bombay Medical Board twenty years later on 26th January

No case appears to be on record in which any member of the I M S has been brought for trial And the before a Court-martial for cowardice three cases quoted above, seem to be the only ones in which a member of the service has been cashiered for fraud

Only one case of hemous civil crime committed by an officer of the I M S appears in the records On 19th June 1821, a Madias Surgeon of over twenty years' service was sentenced to transportation for fourteen years for forgery died in New South Wales before the end of the

Madias G O of 23rd October 1840, notifies that an Asst Apothecary of the Madras Service had been sentenced to death for the murder of another Warrant Officer of the same lank mander-in-Chief commuted the sentence, on account of extenuating circumstances, to penal servitude for life

It is curious that these two last cases, Black-Brown's case of poisoning, (19) wall's treason, Martin's trial for muider, and the execution of La Foige, all occurred in Madras

### References

(1) John Caillaud, (not Callaud), arrived in India in 1753, was appointed in 1759 to command the E I Co's troops in Madras, and to the Command of the Bengal Army on 25th February 1760, was in command during the war in Bihar in 1760, succeeded as Commander in Chief by Major John Carnac on 31st Dec 1760 Brigadier General, 1763, retired 1775, died 1810

- (2) Orme's MSS, India, Vol XIII, pp 3444 3447
  (3) Word if omitted in copying MSS
  (4) The actual Proceedings of the Court are not given in the MSS
- (5) Alexander Boswell, a medical officer, mentioned also m Orme's History, Vol II, Book X, p 437, was for many years physician to the Nawab of the Carnatic Retired 12th February 1776
  - (6) Tellicherri Records, Vol VII, 27th March 1787
    (7) M P L No 333 of 14th Feb 1794, Mily Cons, Vol CLXXXIII, pp 764—768
    ——No 380 of 18th Feb 1794, Ibid, pp 796—834
    ——No 424 of 21st Feb 1794, Mily G O, Vol X,
  - - -No 715 of 26th March 1794, Mily G O, Vol X,
- No 715 of 26th March 1794, Mily G O, Vol X, p 100

  (8) M P L, No 5094 of 26th Dec 1793, Mily Miscell, Vol XXXIX, pp 428—431, No 627 of 18th March 1794, Mily Cons, Vol CLXXXIV, pp 1151—1218, No 1170 (144) of 15th—31st July 1795, Mily Miscell, Vol XLVII, pp 93—190, No 1411 of 4th Sept 1795, Mily Cons, Vol CXCVII, pp 2724—2786

  (9) C P L, 4th, 19th, and 20th June 1777, pp 282, 288, 295, and 5th, 7th, and 27th Dec 1777, pp 346, 347, 360, O C, 8th Jan 1778, No 26

  (10) Another Surgeon who entered the Madras Medical
- (10) Another Surgeon who entered the Madras Medical Service in the same manner as Martin was John Carere, who Service in the same manner as Martin was John Carere, who deserted from Muhammad Yusuf at Madura, along with Captain Riquet, on 26th Feb 1764, and was appointed Asst Surgeon in Madras Military Consultations of 13th Aug 1764 John Castarede, who entered the Madras Medical Service on 2nd June 1790, had formerly been a Surgeon in Tipu Sultan's service (M.P.L. No. 1767 of 21st July 1789, Madras Mily Cons., Vol CXXX, pp 2034—2073) (11) M.P.L., No. 1652 of 9th Aug 1786, Vizagapatam Cons., Vol IX, p. 182 (12) M.P.L., No. 1961 of 31st Oct 1787, Vizagapatam Cons., Vol X, pp 306—320 (13) The original memorial must have been in French, as that in the Public Proceedings is certified by the French translator to be a correct translation

- that in the Public Proceedings is certified by the French translator to be a correct translation (14) Orme MSS, various, Vol LXXVII, p 145 (15) Orme MSS, various, Vol LXXVIII, pp 59, 60 (16) Orme MSS, various, Vol LXXVII, pp 244, 245 (17) This case is reported at considerable length in the Asiatic Journal for April 1836, Asiatic Intelligence, p 268 (18) This case also is reported in the Asiatic Journal for Jan to June 1822, p 491, and that of the Asst Apothecary in the same journal for Mirch 1841, p 235 (19) For Blackwall and Brown see Chapter VII, Early History, Madras and the Coast
- History, Madras and the Coast

### RECENT RESEARCH ON CHOLERA IN INDIA \*

BY E D W GREIG, MD, D Sc,

MAJOR, INS,

On special duty for the Cholera Enquiry of the Indian Research Fund Association

In my investigations on the etiology of enteric fever in India I dealt with the relation of the B typhosus to the biliary passages and its important bearing on the "carrier" question

That the cholera vibilo is limited to the alimentary tract was the generally accepted view in regard to its distribution in the tissues of man when I commenced my research on cholera this year, thus Rogers, 1911, states, "The absence of infection of the gall-bladder and the bile ducts by the comma bacıllus places the disease in quite a different position from that of typhoid in this respect "

<sup>\*</sup> A summary of 4 papers on Cholera read at the All India Sanitary Conference held at Madras in November, 1912

OBSERVATIONS ON THE OCCURRENCE OF THE CHOLERA VIBRIO IN THE GALL-BLADDER

The "carrier 'question is of vital significance in the prevention of cholera, and, therefore, the elucidation of the exact mode of production of the choleia "carrier" is a problem of fundamental importance

At the Jagannath festival at Puii in 1912 I examined bacteriologically the bile in 271 fatal cases of cholera and cultivated the cholera vibrio from the bile in 80 cases. Distinct pathological changes, both macroscopic and microscopic, were found in the gall-bladder in 12 of the 80 cases. Examination of serial sections of the gall-bladder showed the comma bacillus not only on the surface of the mucous membrane but, also, deeper in the submucous tissue in some of the specimens.

# BEARING OF THESE OBSERVATIONS ON THE "CARRIER" QUESTION IN CHOLERA

The conditions met with in the alimentary canal of man are not favourable for a prolonged intra-corporeal existence of the comma bacillus after the acute attack of cholera is recovered Because the delicate cholera vibrio is liable to be crowded out in the struggle for existence by intestinal and putiefactive organisms On the other hand, if it gains access to the gallbladder the comma bacillus finds there ideal conditions for a prolonged life, namely, absence of other competitors, and a suitable alkaline medium, indeed Ottolenghi has recently recommended bile as a selective medium for enriching cholera organism. My researches have demonstrated that the cholera vibrio can enter and live in the bile, and thus afford an explanation of the mode of production of the "Chronic Carrier" An apparently healthy person, whether convalescent or "contact" harbouring the cholera vibrio in the gall-bladder would be obviously a great source of danger to the community, because he is a reservoir of the virus and liable to produce fresh cases and epidemics of cholera wherever he may go

# BEARING OF THESE OBSERVATIONS ON THE CAUSATION OF PATHOLOGICAL LESIONS AND COMPLICATIONS IN CHOLERA

In some cases in which a pune culture of the cholera vibilo was present in the bile pathological changes were observed in the gall-bladder wall itself giving rise to a cholecystitis; and, further, the toxine liberated by the vibrios as they die will pass from the gall-bladder into the system, and some of serious complications of cholera, eg. uræmia and pneumonia, cardiac failure, etc. may be brought about by the action of the cholera poison from this source on the kidneys, lungs, etc. The administration of permanganate by the mouth would

not affect the toxine in the gall-bladder, and thus certain of the fatal cases which occur in spite of its use may be accounted for by this observation. In a case of cholera, in which the acute stage was recovered from and death occurred after 13 days from pneumonia and nephritis, I found comma bacilli in large numbers in sections of the consolidated areas of the lung The bacilli were lying free chiefly between the cells in the cellular exudate in the alveolus. gall-bladder of this case contained a pure culture of the cholera vibrio and the wall showed marked pathological changes This observation was interesting and suggestive the cholera vibrio must have gained access, also, to the blood stream in order to reach the lungs.

A great advance in the prevention of cholera would be made if a means of destroying the organism in the tissues of man could be found

PLACES OF PILGRIMAGE AS CENTRES FROM WHICH CHOLERA IS EXPORTED THROUGHOUT INDIA.

At the great festival of Jagannath at Puri in 1912 I made a series of observations which included

# BACTERIOLOGICAL EXAMINATION OF PILGRIMS CONVALESCENT FROM CHOLERA

At Puri I examined a number of patients just before they left the Cholera Hospital to embark on the train, and I found that about 36% were excreting the cholera organism in their stools The full significance of this becomes apparent when it is remembered that these convalescent pilgrims embark on the train and are carried in a short time to their homes, which, I ascertained, were scattered all over India. Convalescent cholera "carriers" are in a position to cause epidemics of cholera in these various localities. More than a lac and a half of people arrived by train from all parts of India at Puri in July 1912, and about the same number left These facts give some idea of the extent of the exportation of cholera virus from this pilgrim centre. Further, in view of the observation on the occurrence of the cholera vibrio in bile, it is probable that a number of these convalescents will continue to act as reservoirs of the virus for long periods and they cannot be detected except by careful bacteriological examination In two convalescents I found the cholera vibrio being excreted in the stools 30 days and 44 days after the acute attack, it is difficult to say when they will become bacilli

In addition to the cholera convalescents I made a

BACTERIOLOGICAL EXAMINATION OF CHOLERA "CONTACTS" AMONGST PILGRIMS.

When a population is infected by the cholera vibrio, as at Puri in 1912, a number of

individuals. (non-immunes) develop symptoms of cholera and many die, but in addition to these and of far greater importance from the preventive point of view, a certain number of persons (immunes) harbour and excrete the cholera vibrio in their stools without showing any apparent signs of disease. The latter group ("contacts") increase enormously the practical difficulties in dealing with the problem of the prevention of cholera.

Examination of 27 persons at Puii, who had been in close contact with cholera cases, showed that 6 were executing the cholera vibilo in their stools and were apparently quite healthy at the time. Like the cholera convalescents these healthy "contact" (cholera immunes) are extremely important agents in the transportation of the cholera organism to different parts of India.

The discharge of the cholera vibrio in the stools of convalescents is very intermittent, as is the case in enteric convalescents, and this fact introduces a serious difficulty, as regards the detection of the "carrier" and the determination of his freedom from bacilli

It is interesting to note that convalescents excreting the cholera vibrio in their stools for a prolonged period showed cholera agglutinins in the blood, and, therefore, the Widal reaction may be a means of detecting them in the first instance Convalescent cases which did not continue to excrete the cholera vibrio did not show agglutinins in the blood

### A CHOLERA CONVALESCENT CAUSES EPIDEMIC OF CHOLERA IN A JAIL

It might be urged that the "carrier" was incapable of producing an epidemic of cholera I had an opportunity of making very careful observations on this point in connection with the investigation of an epidemic of cholera in Puri The epidemic was brought about in the following manner -A patient, who had been attacked by cholera on the 6th July 1912, was discharged from Puri Cholera Hospital, he wandered about until July 23rd, 1912, when he was arrested and sent to jail A few days after his entrance to the jail cases of cholera commenced to occur · there were 17 cases and 5 deaths The strength of the Jail was 222 at the ın all. On July 28th, 1912, a bacteriological examination of his stools was made by me, and he was found to be excreting the cholera vibrio in large numbers on that day, that is, more than three weeks after the attack The first case occurred in the under trial ward in which the The man was cholera convalescent was located isolated · but bearing in mind the fact that, in addition to the actual cases of cholera, there must, also, have been an uncertain number of healthy individuals excieting the cholera vibrio (immunes) resulting from the importation of the viius; consequently, a very careful disinfection of all fresh night-soil had to be adopted also to arrest the epidemic these means were quite successful. Without a bacteriological examination it would have been impossible to have detected the source of this epidemic and to control it. Further, this observation proves that the "carrier" is capable of causing an epidemic of cholera, and demonstrates the danger to the community of infected pilgrims returning from these festivals.

### FLIES AS TRANSMITTING AGENTS IN CHOLERA

The organism of cholera passes from the infected human host, who may be either actually ill or passively acting as a reservoir of the virus, by various channels, eq, direct contact, water, flies, etc., to uninfected individuals. During the cholera epedemic at Puri in July and August 1912, flies were extremely abundant amounting almost to a plague, an interesting point in this relation was that the appearance and disappearance of the flies synchronised with the arrival and departure of the great mass of consequently, temporary breeding places must have existed at Puii Bacteriological examination of flies caught in the neighbourhood of collections of cholera cases at Puri showed that the cholera vibrio was present on the external appendages, and also in the contents of the alimentary tract of the flies demonstrating that the fly was a channel by which the virus was being conveyed from the infected to uninfected individuals at Puii Water I think could be excluded

### OBSERVATIONS ON DISINFECTION IN CHOLERA

Healthy "carriers" and flies were the main channels by which the infection of cholera was transmitted to the uninfected at Puii I give here a brief account of the procedure adopted by the local authorities, on my suggestion, for dealing with, in the first place, the epidemic in the jail, and, nextly, the more difficult problem of combating the disease in the town itself which was severely infected.

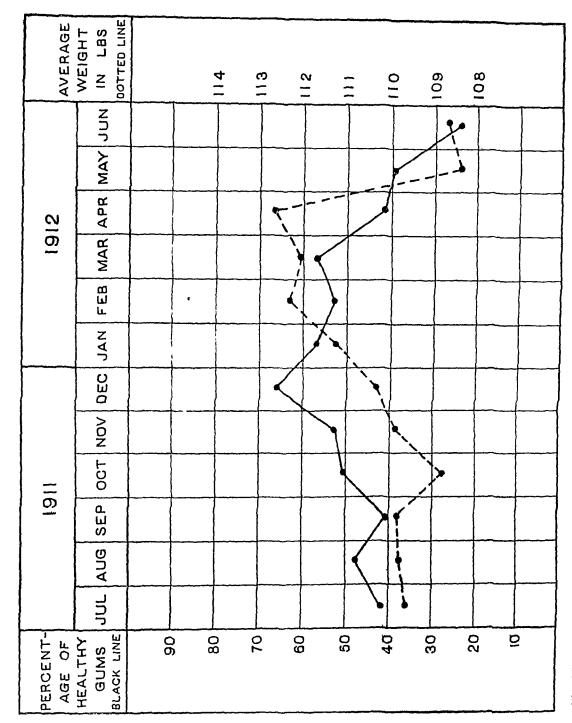
As already described by me in this paper the epidemic of cholera in the jail was caused by a convalescent cholera "carrier" Having regard to the channels by which the infection was spread, the object to be attained, in this particular case, was the disinfection of night-soil at the earliest possible moment before flies could gain access to it and, possibly, become infected with the cholera vibrio. To have determined the particular individuals excreting the cholera vibrio it would have been necessary to have examined bacteriologically the whole jail population, to do this thoroughly would have occasioned very considerable delay, accordingly it was decided to disinfect the fresh night-soil of

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# PYORRHGEA ALVEOLARIS IN SYLHET JAIL

BY L BODLEY SCOTT, BA, MD (CAM), DPH (OX), CAPT, IMS

# CHART 1



The black curve shows the monthly percentages of herlthy gums among prisoners on admission with Pyorthær absent or in an stage, excliding those in the old stage. The dotted curve shows the monthly average weight of all prisoners on admission to jail. Both curves were for variations in the monthly mean ages.

all the inmates of the jail Each person in the jail passed his stool into a receptacle filled with a solution of cyllin of suitable strength, in this way the stool was rapidly disinfected and the access of flies during the process of disinfection was prevented, the fæces being submerged in the solution Cases of cholera were occurring in the jail, but 4 days after (13th August), the commencement of the systematic cyllination of fresh night-soil (9th August), the outbreak ceased

Encouraged by this observation the same plan of disinfection of fresh night-soil was extended to the town of Puri itself, but for the purpose a solution of fresh chlorinated lime was because (1) it is cheap, (2) it is a very good bactericide, (3) its pungent odom effectually keeps The difficulties in carrying out the flies away the systematic disinfection of fiesh night-soil in the town were very great owing to the extremely defective state of the private latimes and the absence of proper access to them in spite of these difficulties it was followed by a marked drop in the number of attacks and deaths from cholera Thus on the 13th August, 3 days before systematic chlorination was commenced, there were 39 deaths from cholera On 20th August, 4 days after it was begun, the deaths On 24th August, 4 deaths, and by the end of August the epidemic ceased entirely

# A Mirror of Yospital Practice.

### PYORRHŒA ALVEOLARIS IN SYLHET JAIL

By L BODLEY SCOTI, BA, MD (CAM), DPH (OV)

CAPT, IMS

PYORRHGA ALVEOLARIS is well known to be an extremely common complaint among the natives of Bengal and Assam and probably of other parts of India also

It appears to take the place in this country of dental caries in England Caries is comparatively rarely seen in Bengal but Pyorrhæa is universal and is even more effective in causing loss of teeth in those of advanced age

It is the exception to meet a man past middle life with healthy gums, and old men almost invariably have the disease in an advanced stage with recession of gums and loosening or loss of teeth. Even below the age of twenty the disease is extremely common

I think it may be said that beyond these generalities very little is known about the disease in Bengal. Its exact distribution and prevalence, its causes, effects on general health, relation to other diseases and amenity to treatment all need investigation.

This paper will throw no light on the most important question of all, namely, the cause of Pyorihea So far as I know we are entirely ignorant of this. Much valuable work has been done in Europe and America on its pathology, bacteriology, etc., but as to its cause, or the reason why one person gets the disease and another does not, we are still, I believe, quite in the dark

As regards the other questions much useful information could be collected by observations on prisoners in Jail I started to record observations in Sylhet Jail about a year ago, and this paper gives the results of a year's records

If similar statistics of all the jails in these provinces could be collected, I think our knowledge of Pyorihæa in Bengal and Assam could be made very much more definite than it is.

The ideas prevalent among jail medical officers regarding the relations between Pyorrhœa and Dysentery, Pyorrhœa and Scurvy and other diseases such as berr-berr, epidemic dropsy, etc, are extremely vague and divergent. One man will say that jail dysentery depends entirely on the condition of prisoners' gums. Another will deny that there is any connection.

The condition used to be, and still is, often erroneously talked of as "spongy gums," and almost every jail disease has at one time or another been put down to "spongy gums.' A great deal of loose talk and many dogmatic theories have been the result of this confusion of terms and the supposed connection between Pyorrhæa and Scurvy

As a matter of fact the gums in Pyorrhœa are never spongy and bear no resemblance to the fungoid hæmorrhagic gums of Scurvy

All this confusion could soon be cleared up by the collection of a few years' statistics in the jails, and the connection between Pyorrhæa and Dysentery, Scurvy, and other complaints definitely settled.

The first question which arises is whether the disease so common in Bengal is the same as the Pyorrhoea Alveolaris of European writers. There seems to be no reason to think otherwise. Its symptoms on the whole correspond very closely with the English descriptions. The following are the characteristics of the disease as seen here.

### CHARACTERS OF THE DISEASE

In the earliest cases the gums on inspection often appear normal, or they may have a rather deeper colour than natural, a purplish hue instead of a light pink. They are never swollen, but the margins may be slightly thickened and do not lie so flatly in contact with the teeth as they should do. On pressure a little blood wells up between the gums and teeth, but no pus. In this stage in fact the disease is not a Pyorrhæa

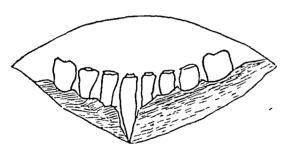
In older cases the gums may or may not be The edges are markedly thickened and loosened from contact with the teeth sure pus alone or pus and blood well up between the gums and teeth

In a still more advanced stage there is a thick deposit of more or less inspissated pus along the edges of the gums which are beginning to recede and leave the necks of the teeth exposed mouth is very foul and the breath smells brushing away the deposit of pus, visible ulceration of the gum margins is often evident

Later still the gums recede extensively and the bony alveolar margins atrophy with them, leaving a large part of the roots of the teeth exposed The teeth then become loose and finally drop out

At any stage after the first tartar may be deposited on the teeth at the gum margins Sometimes an engimous amount collects and serves as a splint to keep the loose teeth in Mastication may be carried on efficiently by masses of taitai burying or replacing Beneath the deposit of some of the teeth tartar the gums invariably recede and discharge pus and are usually ulcerated

The first teeth to be affected by the disease are usually the lower incisors and canines, and it is generally, though not always, to be seen here in a more advanced stage than elsewhere upper incisors follow and then the premolars and The buccal gums are affected more Often one lower obviously than the lingual incisor is laid bare almost to the end of its root before other teeth are seriously affected gum margin then has a remarkable irregular notched appearance as in the diagram below



In my experience, when once the disease has advanced to the stage of recession, it can never be cured until all the teeth have dropped out It never even becomes quiescent Pus is always to be found on pressing the gums and steady progress takes place with periodical exacerbations Not till then will until all the teeth are gone the patient ever again have a healthy mouth

Further than this, I am very doubtful whether the disease is ever cured once the early purulent

stage has set in A patient with Pyorihœa may come for treatment during the periodical exacerbations this time his gums become more swollen and ulcerated. Perhaps his teeth get loosei and eat-

ing becomes painful and difficult. At other times he is not seriously inconvenienced These acuter manifestations of the disease subside under treatment, and probably without treatment, but only to this extent, after the earliest stage is past, have I found the disease amenable to remedies The acuter symptoms may be relieved, but the chronic state iemains

During the earliest stage, when the gums have not receded, are not markedly thickened and are fairly healthy in colour and appearance, when only blood or a little pus are visible on pressing them, recovery may no doubt take place, the gums may become quite healthy again But even this I have not often seen In Sylhet jail it was only found to occur in 1 2% of prisoners who were examined on admission and re-examined on release, and this in spite of the fact that an improvement of general health usually takes place in jail, and cleanliness of teeth and the use of tooth sticks and powder are enforced

### METHOD OF OBSERVATIONS.

Sylhet jail has an average population of near-The observations were confinly 700 prisoners About 1 200 coned to convicted prisoners victs are admitted during the year with sentences varying from one week to ten years and a few " lifers."

The population may be taken as affording a fair sample of the male inhabitants of the surnounding country and, provided the figures are large enough, may be expected to furnish reliable statistics of the condition of these people as regards-

- The general prevalence of Pyorrhea.
- Its relation to season
- " age "
- " religion and corresponding habits "
- " occupation

Observation of the prisoners may also be expected to enlighten us as to-

- Whether Pyorthea is connected with poor general health either as cause or effect
- Whether it has any connection with dysentery, scurvy or any other particular disease

(8) Its amenity to treatment

The condition of the gums of convicts on admission and release has now been recorded for The observations were all iathei ovei one year Every convict comes before me made by myself soon after admission to be examined as to his This opportunity health and fitness for labour was taken to record the condition of the gums in Details of 1 139 convicts the admission register on admission are now available

The majority of the convicts again come before me, as superintendent, on release, but unfortunately not all. Many are released during my absence on tour, or on release orders received late in the day after my morning visit. Details of all convicts released by me have been entered in a special register showing for each man his prison number, age, period spent in Jail, the condition of gums on admission and release, amount of weight gained or lost, diseases and number of admissions to hospital and general health in Jail. This book now contains details of 444 prisoners.

No females have been included in any of the records

The condition of the gums has been registered in all observations under the three headings —

Pyorrhoa absent, including gums with no blood, pus, swelling or recession.

Pyorrhoa early, including cases showing blood or pus without decided recession.

Pyorihea old including cases with marked recession, loosening or loss of teeth.

### THE RESULTS OF OBSERVATIONS

### (1) GENERAL PREVALENCE OF PYORRHOLA.

Out of a total of 1,410 male pusoners of all ages examined —

525 or 37 2 per cent. had healthy gums 646 or 45 8 had early Pyorrhea. 239 or 17 0 had old Pyorrhea

### (2) SEASONAL PREVALENCE.

This is shown by Chart (1) in which the black curve presents the monthly percentage of healthy gums found among prisoners on admission in whom Pyorrhea was either absent or in the early stage.

Those presenting old Pyonhora were excluded from the figures, because their condition is permanent and cannot show any noticeable seasonable changes. Even among the early cases of Pyonhora included in the figures there were probably a large number whose condition was past being cured by seasonal or other influences, but it was expected that a certain proportion of those in the earliest stages would have gums in a state fluctuating between the healthy and the unhealthy, and would affect the monthly proportions of healthy to unhealthy gums if season has any influence on the prevalence of Pyonhora

Table (Å) gives the figures from which the curve of healthy gums was constructed. It may be noted that the total admissions in some months were so small as to admit of considerable statistical error. This error was reduced to some extent by applying a correction for age. The average age of each month's admissions varied from 31 5 to 35 5 and a correction calculated on Chart (2) was added to or deducted from the percentage of healthy gums according as the monthly average age exceeded or fell short of the mean average age (33 0) for the whole year.

Table (A)

Tot admi- 1911-12. wit Pyori absen earl			
	sions age of monthly admis-	rercontage	Corrected percentage of healthy gums
July       6         August       10         September       7         October       3         November       6         December       8         January       8         February       10         March       9         April       6         May       5         June       148	32 5 9	38 3 49 0 38 0 50 0 52 2 67 5 54 4 55 8 41 9 36 8 25 0	41 8 48 0 40 8 50 7 52 8 66 4 57 0 53 3 57 1 41 4 39 6 24 0

Showing the monthly percentage of healthy gums found among prisoners admitted with gums healthy or in the early Pyorrheic stage, with a correction applied for variations of monthly mean age.

Chart (1) shows plainly that season has a marked influence. The percentage of healthy gums remained below 50 during the six hot months of the year, April to September, and above 50 during the months October to March. The lowest point was reached in June when the proportion of healthy to early Pyorrheic gums was 25 75, and the highest point in December when the proportion was 66 34

As an indication of the seasonal fluctuations in the general health of the population, I have also prepared a curve showing the average weight of prisoners admitted during each month of the year. For comparison with the curve of healthy gums it is shown on the same Chart (1).

In estimating the mean weights every precaution was taken to reduce the "probable error" as far as possible. Prisoners under 20 and over 60 years of age were excluded. All weights, which diverged from the mean by more than 20 lbs, were eliminated, and a correction was made for the number of ages below 30, since it was found that the proportion of young prisoners admitted from month to month varied considerably, and the average weight in the decade 20—30 was 5.4 lbs. below the average between 30 and 60

It will be seen that the curve of average weight corresponds roughly with the curve of healthy gums. The average weight was below 110 lbs for the seven months May to November, and above for the five months December to April. The lowest points of the two curves occurred at the same season, but the highest average weight was found in April, and the highest percentage of healthy gums in December. There was a remarkably abrupt fall in average weight in the month of May, followed by a similar fall in the percentage of healthy gums in June.

It seems, therefore, that the prevalence of Pyonhæa is connected with the state of general health of the population as indicated by

fluctuations in average weight Probably any cause which lowers the general standard of health also decreases the proportion of healthy gums

No other causes than pure seasonal influences can be found to account for the fluctuations shown in the curves of Chart (1). The year under consideration was a healthy one throughout and remarkably free from malaria I do not remember to have found more than half a dozen enlarged spleens among some 1,200 pusoners admitted Extensive observations in the district during a special investigation into the prevalence of Kala-azar showed that the splenic index among 1,842 village children was only 13 per cent during the season, December 1911 to April 1912 There was certainly no epidemic of malaria in April of May to account for the lapid fall in the curves

Nor was there any seasonal scarcity during the year or deficiency of any essential article of diet. Fish and vegetables are always available in the villages throughout the year and there was no shortage of rice

It would appear that the onset of the hot damp weather causes a rapid decline of general health, while a steady improvement takes place during the cold season, and the prevalence of Pyorihœa is markedly affected by these fluctuations

### (3) THE INLUENCE OF AGL

Chart (2) shows the age incidence of Pyorihea in five age-periods. It is based on 1,139 observations of prisoners on admission and 271 on release

The figures in each age period except the last were large enough to avoid any great statistical error. The main error to be considered is that incident to the estimation of age. The ages of prisoners can be only approximately fixed, as few of them can say with accuracy how old they are

The chart shows that at the age of about 25 the numbers of men presenting healthy and unhealthy gums are about equal. As age advances from this point a steadily diminishing minority is found with healthy gums, until beyond the age of 55 it is only 60 per cent.

### (4) THE INFLUENCE OF RELIGION AND RACE

This is shown by Chart (3) which is based on observations of prisoners on admission

The chart also shows the proportions in which the different classes were admitted Roughly one-quarter of all admissions were Hindus and three-quarters were Mohamedans

It will be seen that the Hindus were decidedly more unhealthy as regards the condition of their gums than the Mohamedans The reason of this is obscure. Differences in diet will not account for it, since in this district the diet of the two classes is practically identical. All classes eat

fish daily, while pulses are used to a small extent only. Fish is always plentiful while dals are not grown in the district and have to be imported. The immigrant coolie class, which formed about one-third of the Hindu admissions, is to some extent an exception. Retaining the habits of their country they eat a considerable amount of dals, but by no means to the exclusion of fish. The Mohamedans, though occasionally eating fowl, seldom touch any form of flesh besides fish.

The Hindu admissions can be divided into three classes, viz —

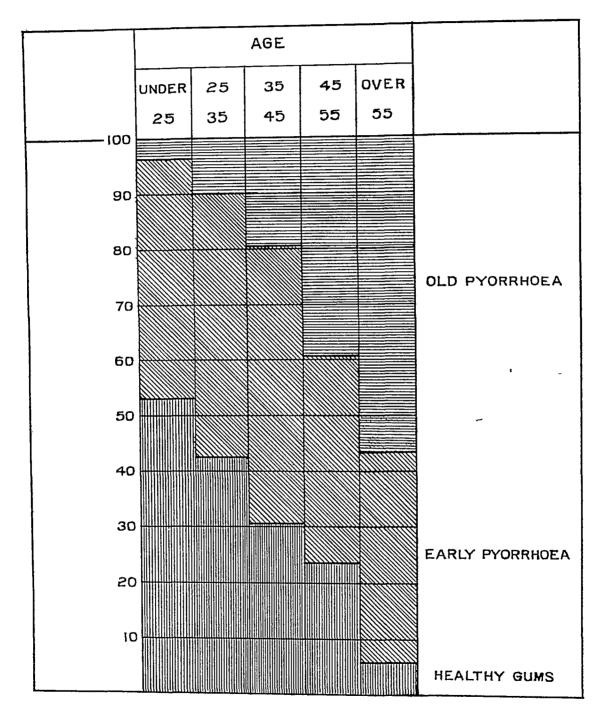
- (1) The Hindu natives of the district mostly of the lowest castes
- (2) The Hindu immigrant coolies of whom most are semi-permanently settled in the tea gardens of the district
- (3) The Manipuis who are Mongolian colonists from the Manipur Hills and have formed many permanent settlements in Cachar and Sylhet

The Hindu natives and the Hindu coolie class showed much the same percentage of healthy gums. The Manipuris approximated more to the Mohamedans, but the number examined was too small to warrant any conclusions.

There were in addition 8 prisoners admitted belonging to other Hill Tribes of whom 7 had healthy gums. This number is too small to be of any value, but I may state that from observations both in and outside the jail I have formed the opinion that Pyorrhæa is very much less prevalent among the Hill Tribes living in the hills than among the plains population. The plains-dwelling Manipuris do not show this difference so that it may be a matter of environment rather than tage.

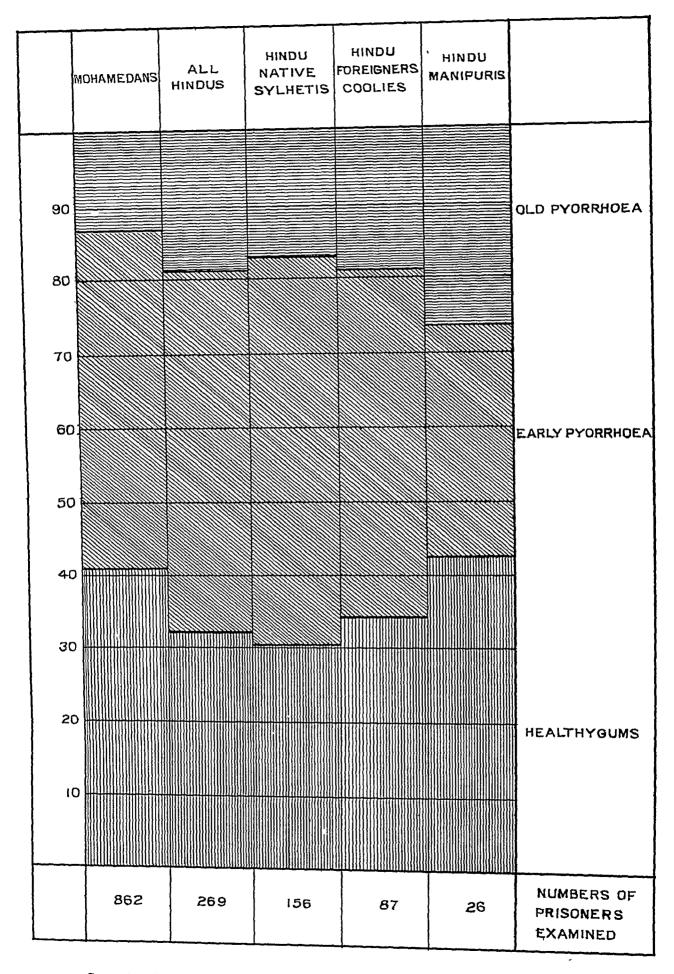
It may be remarked here that the standard of living of all classes in this district is high and because of the large amount of fish consumed, their diet has a high nitrogenous value is available in all parts at all times of the year, and Sylhet is probably the chief fish producing The health of district of Bengal and Assam prisoners on admission to jail is correspondingly Those who lose weight during residence in Jail are nearly equal in number to those who The excess of weights gained over weights lost averages only one pound per head of all The average for released prisoners coolies is 17lbs, indicating that this class is more unhealthy than the natives of the district There are several reasons for this which need not be gone into here, and the conclusion is borne out In most parts of India figures by expensence would probably show a higher average gain of weight in jail; indicating a lower standard of health among the general population in most parts of India the jail dietary is very much better than that of the outside population, this cannot be said to the same extent of Sylhet

CHART (2)



Showing the percentages of prisoners in five age periods with healthy, early pyorrhosic, and old pyorrhosic gums.

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Comparing the percentages of healthy, early pyorrhouc, and old pyorrhouc gums found in prisoners on admission among different races and religions, and showing the proportions in which Mohamedans, Hindus, and three different classes of Hindus are admitted to jail

Though  $\frac{1}{3}$  chittack of fish is issued daily, this is much less than the people are accustomed to take in their homes, and they do not as a rule appreciate either the quality of the jail diet

### (5) THE INFLUENCE OF OCCUPATION

The jail figures are not large enough to give us any information on this point, since all but a very small percentage of prisoners are cultivators

# (6) THE CONNECTION BETWEEN PYORRHŒA AND THE STATE OF GENERAL HEALTH

We have seen an indication in Chart (1) that a lowering of general health increases the tendency to Pyoirhea Further evidence of the connection is obtained by studying the weights of prisoners and their admissions to hospital while in jail

TABLE (B)

· · · · · · · · · · · · · · · · · · ·					
	Average Weight in Age periods (lbs )				
	2030	30-40	40-50	50—60	
Pyorrhæa absent Pyorrhæa early Pyorrhæa old Totals of prisoners	109 5 1(6 2 104 0	114 0 113 0 107 4	114 0 114 8 113 0	107 2 111 7 113 6	
examined .	323	456	204	69	

Table (B) shows the average weight on admission of prisoners with Pyorrhea absent, early, and old in four age-periods. It will be seen that below the age of 40 there is a marked correlation between unhealthy gums and deficient weight, while over 40 this correlation seems to disappear, and in the last decade actually becomes reversed. Only 69 men in this decade, however, were examined, too small a number to avoid the possibility of a large statistical error.

The question arises whether Pyorrhœa causes loss of weight or whether loss of weight is merely an indication of a depressed state of health due to other causes which increases the tendency to Pyorrhœa. The latter is probably the main factor in producing the variations displayed by Table (B), and we may infer that beyond the age of 40 all but a resistant few have reached an established and incurable stage of Pyorrhœa, and the influence of depressed general health in starting an early Pyorrhæa, or converting an early into an old stage, is less evident than in younger men

To some extent, however, Pyorrhæa must itself cause loss of weight, especially in its advanced stages and during the acute exacerbations. Loose and painful teeth produce deficient mastication and assimilation of food, while the foul mouths, so often seen with gums discharging quantities of pus, must re-act on the general health and weight.

It may be remarked that in the prisoners of this and most other Indian jails loss of weight may be taken as a direct indication of loss of health. A condition of unhealthy obesity, due to too much food and too little bodily work, though common in certain classes of Indians, is rare among those who furnish the jail populations, and loss of weight can scarcely ever be due to improved conditions.

TABLE (C)

	Number of prisoners exa mined on release	Total number of admis sions to hospital while in Jail	Total number of months spent in 1311	Number of admissions to hospital per 100 prisoners per month		
Pyorihea absent Pyorihea early Pyorrhea old All Pyorrheic gums combined	116 212 116 328	78 139 107 246	1 218 1 953 1,165 3,118	6 46 7 12 9 2 8 0		

Table (C) shows the rate of admission to hospital for all diseases according to the condition of gums on release. It refers to the whole period spent in jail by each convict, and not to the past year only. Some of them may have been in jail for 5 years and others for one month, but in both cases all admissions to hospital, while in jail, are included. The third column gives the total number of months spent in jail by all prisoners combined, and the admission rate in the fourth column is calculated on this total.

This table again displays a correlation between diseased gums and poor general health. It will be seen that the hospital admission rate is lowest among prisoners with healthy gums, higher among those with early Pyorrhæa and higher still among the old Pyorrhæics.

# (7) THE RELATION BETWEEN PYORRHOEA AND PARTICULAR DISEASES.

(a) Dysentery.

TABLE (D)

	Number of prison ers examined on release	Number of admissions to hospital for dysentery & diarr hosa per 100 prisoners per -month	
Pyonhea absent Pyonhea enrly Pyonhea old All Pyonheacc gums combined	116 - 212 - 116 328	2 54 3 53 2 83 3 20	

Table (D) shows the hospital admission rate for dysentery and diarrhœa calculated in the same way as the general hospital admission rate in

The figures for these two diseases have been combined because it is certain that the majority if the diarrhea cases were really mild attacks or slight relapses of dysentery, not severe enough to show mucus or blood A few cases diagnosed, for reasons unknown, as Colitis are also ıncluded

The table shows that there were decidedly more admissions for dysentery among the unhealthy gums than among the healthy, but for some reason the admission rate is highest among the early Pyorrhœics, while it is very little higher among the old cases than among the healthy This can be explained by supposing that Dysentery is a cause of Pyorrhœa rather than the reverse, that it rapidly brings all cases which are on the brink between the healthy and the early Pyorrhœic state into the latter category, but the corresponding effect in converting early into old Pyorrhæa is not so evident because this is a result which requires time, and is not brought about within the usual short sojouin of the average prisoners in Jail If, on the other hand, Pyorrhœa were to any extent a cause of Dysentery, we should expect this disease to be most frequent among the old Pyonheics who have the most septic mouths

On comparing Tables (C) and (D) it will be seen that the admission rate of the healthy gums bears exactly the same ratio to that of the unhealthy in the two tables, thus —

8 = 45 = 25The relation between Pyoirhea and Dysentery appears to be exactly the same, therefore, as that between Pyorrhœa and all causes of admission to hospital combined, and Dysentery must be considered to have the same, and no closer connection with diseased gums as other complaints which are associated with a state of depressed general health

### (b) Scurvy

A possible connection between Scurvy and There are Pyorrhœa needs careful consideration two possible relationships between diseases

(1) It might be supposed that Pyorrhæa is a form of mild chronic scoibutus, or at least the residue of frequent epidemics of Scurry among the population Such epidemics are said to be common in parts of Russia and are there thought I think this theory may be to be infectious There is absolutely no evidismissed at once dence that Scurvy exists among the population I have never heard of an epidemic and never seen cases in the hospitals, though Scurvy undoubtedly occurs sometimes in the jails diet of the people is sufficient in quantity and contains plenty of antiscorbutic elements at al seasons. Moreover, there is no resemblance between the condition of the gums in the two

complaints except during the occasional acute exacerbations of Pyorrhæa when the gums swell up to some extent Even then they have not the deep purple colour and fungoid appearance of scorbutic gums and are not infiltrated with hæmorrhagic effusions The earliest and commonest cases of Pyorrhea show no signs that the gums have ever been spongy, and none of the constitutional or hemorrhagic symptoms Scurvy are to be seen even in the worst cases of Pyorrhœa

(2) It is possible and even probable that Scurvy might increase the liability to Pyorrhœa In a country where so many are on the verge of this complaint an attack of Scurvy would be very likely by its effect on the gums to precipitate its onset or accelerate its progress if already present

It so happens that an outbreak of Scurvy occurred in Sylhet Jail about September 1911 About 60 cases were admitted to hospital, and many more had slight signs of the disease not requiring admission The symptoms were great swelling of the gums which in some cases formed enormous fungoid hæmorrhagic masses almost concealing the teeth, with weakness and pains in The typical biawny infiltration of the the legs. subcutaneous tissues of the legs below the knees was a marked feature in all the cases admitted to hospital, but hæmorrhages, besides those of the gums, were seen in only one or two cases The causes of this outbreak were obscure The supply of vegetables was not so good at that The jail garden being time of year as at others low is flooded through most of the rains, and only a few kinds of vegetables will grow Still, a sufficiency of green vegetables, mostly Kochu, was issued daily as well as a lation of preserved tamaiind and a small quantity of fresh fish with a little potato and the usual allowances of rice, dal, onions and spices The diet was certainly not one which would produce Scurvy under ordinary circumstances, but the causation of Scurvy is far from being completely known. Other influences, besides deprivation of fresh concerned certainly vegetables, are these confinement and overcrowding are recognised and the jail at that time was decidedly overcrow ded

When the outbreak began the condition of gums of only a few prisoners had been recorded Information as to the previous presence of Pyorrhea in the Scurvy cases was not, therefore, Thirty-seven of the severer cases adavailable mitted hospital have, however, been recently examined most of them about eight or nine with the following recovery, months after results -

19.4% had healthy gums 66.6% had early Pyorrhœa. 14.0% had old Pyorrhœa.

The average age of these 37 prisoners was 34, and a reference to Chart (2) will show that for this age the percentage of old Pyorrhea was about normal, but the percentage of healthy gums was considerably lower than normal The figures are small to wantant conclusions, but so far as they go they indicate that an attack of Scurvy may increase the hability to Pyoirhœa

If, therefore, it could be shown that Scurvy existed to any extent among the general population, it might account for the great prevalence But there is absolutely no eviof Pyorrhœa dence of any such scorbutic tendency the possibility that Pyoriheea is itself a manifestation of Scurvy, and due to similar causes, I have shown that this is extremely unlikely

As regards other diseases and their relations with Pyoriheea, the figures of one jail for one year are insufficient to furnish any information Valuable knowledge might very possibly be gained from the combined statistics of several juils for several years I may buefly mention some of the main diseases to be considered, and something may be learnt from their general prevalence among a population so afflicted with Pyorrhœa

### (c) Respiratory Diseases—Particularly Bronchetts & Pneumonia

In order to eliminate the factor of age the hospital admission rates must be calculated for several separate age-periods, and statistics of a very large number of prisoners would be required to furnish sufficient figures

### (d) Digestive Diseases

Dyspepsia and various disorders of digestion are extremely common among Indians of all classes, but jail statistics are not likely to give us much information as to their connection with Pyorrhœa, because pusoners are rarely admitted to hospital for these comparatively slight ailments

It may be remarked that compared with English hospitals cases of gastric and duodenal ulcer are extremely rare in the hospitals of Bengal and Assam, while chlorosis with its gastric complications is, in my experience, neither seen nor heard of Appendicitis is by no means rare, but is certainly not nearly so common in the hospitals as it is in England

The universal presence of intestinal parasites is a possible factor in the causation of Pyorrhœa

# (e) Rheumatrc Complaints

Rheumatoid arthiitis (Arthritis deformans) which has been connected by English writers with "oral sepsis' is, I believe, very rare in this country I cannot remember to have seen a Acute rheumatism is also comparatively

I have seen cases with all the arthritic symptoms and at least one with endocaiditis, and cases of valvular heart disease with a history of rheumatic fever occasionally appear in hospital, but acute theumatism and heart disease are undoubtedly very much rarer than in England

Chronic theumatism of all kinds, on the other hand, is extremely common, though I should not like to say more common than in England Here, again, jail statistics will not help us in elucidating its possible connection with "oral sepsis," as it is not a disease for which prisoners are admitted to hospital

In conclusion, it may be remarked that though this investigation is far from being a complete one and leaves us almost as much in the dark as ever regarding the etiology of Pyonhea Alveolaris, yet it might have been expected to afford some evidence in support of the theories which have attributed such dire results to "oral sepsis "

Though the number of observations has been throw light on many questions too small to connected with the disease, still few European writers on Pyorrhœa are likely to have had the opportunity of seeing so many cases within so short a time Moreover the circumstances of prisoners in jail are peculiarly favourable for observations of this sort They are weighed every fortnight, their health is carefully watched and their fitness tested by enforced labour cases of Pyorrhœa have thus been kept under observation in Sylhet Jail for periods varying from a few weeks to a year The great majority of these cases had septic mouths and very many had oral sepsis in its most extreme form, though not of the kind due to carious cavities and septic

Oral sepsis has, at one time or another, been suggested by European writers as the cause of a great many diseases, chief among which are perhaps rheumatoid arthritis, malignant endocarditis, appendicitis, gastric and duodenal ulcer

Yet none of these have been seen in the jail and they are certainly very rare in the hospitals of the district, although the population is so generally afflicted with Pyorrhea Moreover little definite evidence has been found that this form of oral sepsis has any marked deleterious effect on health Such evidence as we have found of a connection between poor health and an increased tendency to Pyorrhœa indicates that this tendency is more often the result than the cause of depressed general health

There are two complaints, however, which stand out as being especially common among the general population and may possibly have some connection with the prevalence of Pyorrhœa, namely, many and various disorders of the digestion and chronic rheumatism,

### (8) AMENITY TO TREATMENT

As remarked above I believe Pyoirhœa Alveolaris to be incurable when once recession of the gums has started and probably even before this when pus has once made its appearance incurable I mean that a state of completely healthy gums free from pus and not bleeding on pressure can never be re-established mean that the symptoms of which patients mostly complain cannot be alleviated, namely, tender, swollen and easily bleeding gums and painful These are the symptoms of the periodical exacerbations They certainly subside to a very large extent under treatment, and the loose teeth become tight again provided recession and bony atrophy have not advanced to such a degree as to remove all support for the roots of the teeth

On the other hand, the early cases with no thickening and recession of the gums and showing only blood on pressure without pus certainly do The fluctuations shown in Chart (1) prove this If at one time of the year only 24 per cent of gums are found healthy and at another time 66 per cent, among prisoners admitted without old Pyorihea, it is certain that many of those who have early Pyorrhea in the unhealthy months lose it in the healthy season

This has rarely been observed to happen in the iail however Among 165 pusoners examined on admission and re-examined on release -

2 of 12 % admitted with early Pyorihoea had

healthy gums on release 21 or 127 % admitted with healthy gums had early Pyorrhoea on 10lease

7 oi 42% admitted with early Pyorihoa had old Pyorrhæa on release

Among those admitted with old Pyonhea none were found to have improved on ielease These results occurred in spite of the fact that considerable attention is paid to pissoners' teeth On parades every man is made to pull down his lower lip and show his gums, and those found with duty mouths are warned or punished The regular use of tooth sticks and charcoal Moreover a gam in weight powder is enforced and improvement in general health usually take place in the jail as the result of good food and sanitation, though not to the same extent perhaps as in other parts of India

The worst cases of Pyonhea are admitted to The treatment which is found most hospital successful for the acute cases is a thorough swabbing of the gum margins once a day with tincture of rodine and the hourly use of a weak rodine mouth wash, combined with good food, tonics and measures to improve the general health

### SUMMARY OF CONCLUSIONS

Pyorihea Alveolaris is so common among the natives of these parts as to be almost a natural condition

Of those who live their full span of life very few escape it Age is the chief factor in its development Many develop the disease in youth and many not till advanced life, but the liability steadily increases with age

About 25 is the age at which half the males are to be found with Pyorrheea and half without.

There are marked seasonal fluctuations of prevalence More healthy gums are to be found in the cold dry season than in the hot damp weather

This appears to be due to the effects of seasonal influences on the general health of the popula-

- (3)Hindus seem to be rather more subject to the disease than Mussalmans The reason for this is not obvious
- (4) There is a decided correlation between unhealthy gums and a state of poor general health as indicated by deficient weight and by an increased hospital admission rate

There is some evidence to show that Pyoirhæa is more often the result than the cause of depressed

No definite evidence was found of any closer relation than this between Pyorrhæa and any particular disease, but possibly Scurvy, due solely to its local action in damaging the gums, may aggravate the Pyorrhœal state more than any other constitutional disease

(6) There is evidence to show that Dysentery acts as a cause of Pyonhea, and not vice versa but only to the same extent as other diseases

which depress the general health

Nothing was found to support the various theories which have attributed to oral sepsis such diseases as theumatoid arthritis, appendicitis, gastiic and duodenal ulcei, etc., but it is possible that other less distinctive complaints, such as chronic dyspepsia, constipation and disorders of digestion, and chionic rheumatism may have some connection with oral sepsis These complaints are certainly unduly prevalent throughout Bengal and Assam

Pyorrhœa is incurable once the earliest The more troublesome sympstages are past toms, however, which occur during the exacerbations, are to some extent amenable to treatment

I have to thank Sub-Assistant Surgeons Manındra Mohan Guha and Harı Charan Karmakar for valuable help in recording these observations

### AN EFFICIENT STERILIZER FOR USE IN SMALL TOWNS

BYR J L SLADEN, FRCS, Surgeon, G I P Ry

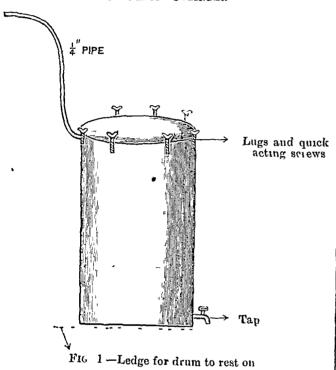
WHEN I first came to India ten years ago, I had for the want of a sterrlizer to boil dressings in water or steam them, and finding that it was

very unsuitable because they were wet, I got the local engine to do this work

Any stationary boiler such as is used in ginning presses or other small factories, answers the purpose

A small  $\frac{1}{4}$ " pipe is fitted in to the boiler (this pipe should be fitted to the crown of the boiler if possible, to ensure getting dry steam) and leads to a cast-iron cylinder The lid of the cylinder should be hinged and secured with lugs and quick acting screws in the same manner as the ordinary trouser press is fastened, further, the inner side of the lid should be recessed and this recess fitted with asbestos to ensure a tight joint when the lid is closed A small tap is fitted near the bottom of the cylinder

CAST IRON CYLINDER



To go inside this cylinder is a drum made of vine sheeting, 1" thick, and this dium has a lid fitted to it which closes it like a lid of an ordinary In the middle of the lid and in the middle of the bottom of this dium a hole  $\frac{1}{4}''$  diameter Three handles consisting of straps of zinc are fitted near the top They act as springs to keep the drum in the middle of the cylinder and also as handles to remove it

Half way down the drum a ledge is put in, which supports a perforated zinc partition with a handle to it, so dividing it into an upper and lower compartment In the lower compartment are put the dressings which are last required at an operation, viz, gauze, lint, cotton-wool bandages are a binder, in this order from below upwards, and in the upper compartment are swabs, towels, coats and masks

The dressings having been put in, and the lid closed, the zinc drum is put into the iron cylinder and the cover screwed down The drum should rest on a ledge in the cylinder at the level of the

Steam is turned on and after a little has been allowed to blow off through the lower tap, this is closed, and the pressure in the cylinder is then the same as that in the boiler

It is left for 20 minutes, and then the lower tap is again opened for a few seconds to ensure that the diessings are dry The steam is then turned off from the engine and the non lid unscrewed The holes on top and below the zinc drum are sealed with a piece of gummed paper, and on this is written the steam pressure and the time it was left in, and the date and the driver's signature The edge of the lid is also sealed with gum and paper, and the dium so secured can then be kept in hospital until required Several zinc drums are made, and their contents vary with the nature of the operation which is likely to be performed

In this way a central hospital can supply zinc drums to branch dispensaries, and I have found these quite sterile for a long period I have used them for the past eight years

The cost of the non cylinder is about 30 rupees and the zinc drums about five jupees each if old material be used, which is quite satis-I have used these drums in ten laparotomies and have never had cause to fear, that the contents were not properly sterile

It has been most convenient when an operation has been done away from head-quarters as the drums are easily carried about

The average steam pressure has usually been about 100 lbs to the square inch, and this is far above what is really necessary, and to my mind is as effectual as any sterilizer which costs £30 or over

It is well to put a thin layer of cotton-wool below the gauze so as to prevent any possible contamination from the lower steam hole.

ZINC HANDLES FOR LIFTING DRUM OUT OF CYLINDER

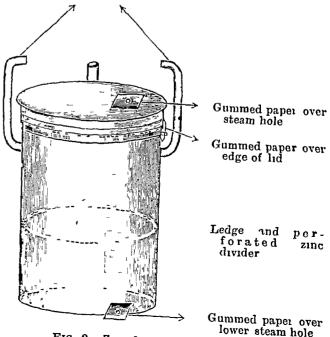


Fig 2-Zinc drum

lower steam hole

# AN IMPROVED METHOD FOR STAINING "NEGRI BODIES."

BY F PERCIVAL MACLIE, MB, MROP, FROS,

### CAPT, IMS

(1) If brain was originally fixed in Zenker's fluid, then apply iodised alcohol to the section after the paraffin has been removed by xylol and the xylol by alcohol

(2) Wash off the iodine with rectified spirit

(3) Apply to the slide as much as it will conveniently hold of the following solution —

Alcoholic eosine 50% alcohol

0 5 grammes 100 0 c c.

- (4) Set fire to this fluid on the slide and allow it to burn out. What remains is a strong solution of eosin in water with a thick scum of eosine floating on the water. Allow this to act for a minute or two
- (5) Wash off the excess of eosine in water and run on a little spirit
- (6) Apply to the slide a solution of caustic alcohol as follows —

Put, say, 6 c c of rectified spirit in a watch glass and for every c c of spirit add one drop of a 1% solution of caustic soda in Absol Alcohol Let this act on the sections till on washing they appear to be a decided pink colour, this happens in a few seconds. Viewed under the low power, the R B C and nucleoli of the nerve cells stand out a deep red on a reddish background.

(7) Differentiate by washing in acid alcohol (one drop of 5% solution of acetic acid to a c c of rect spirit) This sharpens up the picture

(8) Counterstain in Hæmalum or any Hæmatoxylin stain

(9) Dehydrate in the usual way and mount in balsam

### RESULT

General groundwork, faint blue or pink, Nerve cells, pale blue, Nuclei, deeper blue, Nucleoli, red or violet, Blood corpuscles, bright red, Negri bodies, vermilion or magenta

This method was used by me at the Bombay Bacteriological Laboratory in 1906, 1907 and 1908, and was much quicker than the usual methods in vogue (eg, Mann's stain which required 24 hours to complete) and gave results equal to the best of these methods

The method was elaborated after a good deal of trial, but the nucleus of the idea I owe to Mun who described a similar method for another purpose, the reference to which I have unfortunately forgotten. The essence of the process is really the action of powerful alcoholic and watery eosines, the latter left over when the

alcohol is burnt off from the original mixture It will be noticed that the Negri bodies are powerfully eosinophile, and we may well inquire if this acid loving property is a chemical one, due to the parasite of rabies producing or being itself of alkaline nature, or whether there is a physiological affinity such as might be turned to therapeutic advantage

It will be remembered that certain organisms such as spirochetes and trypanosomes are readily affected by dye-stuffs, such as trypan red, congo red, and the action of methylene blue on the malarial parasite is also a case in point. What I am suggesting is that the "Negri body" whatever it is, showing such strong affinity for eosine in its dead state, might also seize on the dye intra vitam

I performed a few experiments to see if eosine had any sterrlising effect on the rabies virus by injecting eosinised and untreated virus into The results were unconclusive and were not carried further as I had other matters in It might be worth while carrying out more experiments, for if it were found that eosine really had a neutralising effect on rabid material, the first aid treatment of dog bite would be an application from the red ink bottle instead of the usual cauterisation These suggestions arose from a consideration of the staining reactions only and remain, as far as I am concerned, as they were when I attempted to put the I have not followed theory to the test in 1907 the recent work on rabies, but in all probability so transparent a suggestion has already occurred to and been disposed of by other workers

# MEMORIAL TO THE LATE CAPTAIN SIMSON, 1 M S

An interesting ceremony took place in Edinburgh on November 21st, when the Rev Dr Kelman formally handed over to the University Athletic Club a beautiful clock erected in memory of the late Captain E D Simson, ims, the University and Scottish International half-back. The clock, which has a single dial, has been erected in a central tower overlooking the balcony of the pavilion. It is the gift of the late Captain Simson's fiancée, Miss Eva Gray, daughter of the late Mr A R Gray, Aberdeen, and bears the following inscription "Virtute non verbis—E B Simson, Captain, Indian Medical Service, student of Edinburgh University, 1901–1906, horn 1882, died 1910" In handing over the clock on behalf of Miss Gray, the Rev. Dr Kelman said

"Captain Simson was first capped in 1902, and played in seventeen international matches. His reckless pluck, unerring sureness, perseverance, tenacity, and resource were the qualities which made him one of the most brilliant Rugby players in the kingdom. In life, as in athletics, he played the game well."—B. M. J., 30th

Nov , 1912

Captain Ernest David Simson was Lorn in 13th Maich, 1882, educated at Edinburgh University, where he took the degrees of MB, BCH, in 1976, and entered the IMS as Lieutenant on 2nd Februari, 1907, becoming Captain on 2nd February, 1910 He died of cholera at Nausheia on 22nd July, 1910 Multis ille bonis flebilis occidit, a man of the best type which goes to the making of the Indian Services

# Indian Medical Gazette JANUARY

### ANNUS MEDICUS 1912

THE year 1912 opened auspiciously with the visit of Their Majesties the King and Queen-Empress, and soon after the territorial changes announced at Delhi came into force on 1st April by the elevation of Bengal into a Presidency, the formation of a new Province of Bihar and Orissa and the re-establishment of Assam as a separate Chief Commissionership to certain changes in medical administration, the new Bengal Presidency came under Colonel GF A Harris, CSI, FRCP, who was previously I G C H of Bengal, but by some strange delay Colonel Harris has not yet received his step in promotion to Surgeon-General and has not yet been given his I M S Personal Assistant, in the same way Lieutenant-Colonel F C Drury who went from the Medical College, Calcutta, to be head of the medical administration in the new Province of Bihar and Orissa has not received his step and still at time of writing remains a Lieutenant-Colonel Colonel R Neill Campbell, CB, CIE, formerly I G C H of Eastern Bengal, became A M O of Assam and combined in himself the duties of Inspector-General of Hospitals and of Prisons, and Sanitary Commissioner for that small Pro-The removal of the nominal capital of India from Calcutta to Delhi was of little importance medically speaking

A year ago there were great hopes that the military side of the I M S would be reorganised, and it is expected that this matter has been satisfactorily dealt with by the Commission presided over by Lord Nicholson. The shadow of the coming Royal Commission on the services is hanging over the I M S and all the other services as the year closes.

The year 1912 will be notable for a distinct advance in sanitary matters, and as we have only recently referred to this subject (December) we need not do more than chronicle the fact here. The most important medical change of the year has been the Bombay Medical Bill, which inaugurated a great advance in the organisation of the medical profession in India Bengal has not yet got its Medical Bill, and the question of the recognition of unofficial private

medical schools with their necessarily lower standard blocks the way. It is certainly not desirable to recognise any schools admittedly inferior to the Government schools in opportunity and in the training given. Bengal has need of more medical men, but it needs the best the country can give and to flood the country with inferior men would be very bad policy. The great need is for the outside schools to improve and amalgamate if by so doing a higher standard will be reached.

The Calcutta Tropical School has advanced almost to the stage of bricks and mortar, and we hope another year will find this school in working order with a complete and whole-time staff worthy of the unique clinical material it will have at its doors

Tuning now to our own columns during the past year, we have to thank our numerous contributors for the many valuable papers sent us. Our special number in 1912 was devoted to a history of what the Indian Medical Service has done for India and a tale of fine achievement it was

The diseases which occupied the attention of the profession in India during the year were several and important. Cholera though nowhere prevalent in great epidemics was universal, and we published papers by L. Rogers, Bishop and Ganguli on the treatment by saline injections so strongly advocated by Rogers. More recently the importance of the carrier in cholera spread has been emphasised by several papers read at the Madras Conference in December, by Greig and Ross especially. This recognition of the carrier unfortunately does not make prevention any the easier, especially in diseases of great frequency and prevalence such as cholera and dysentery

The emetin treatment of dysentery so ably advocated by Rogers is the fashion of the day, and on all sides we have heard of good results especially in the treatment of chronic cases. It may not be a magna therapia sterilans, but it is remarkably rapid and efficacious. The despised and rejected emetin of 20 years ago has now become the hope of the physician. Our columns have chronicled the advances made in the study of mysterious berrand the importance of such food-deficiency diseases is becoming recognised widely.

Leprosy has come in for a share of the progress of the year, and the work of Rost and Williams is certainly hopeful, but that we have

got a cure for this old world disease we will not assert Cataract and the value of Smith's operation continues to be a subject of great interest, and opinion seems to incline to placing Smith's operation as that of election provided the operator has the requisite experience and skill, though many men of vast experience get equally good results with operations requiring less dexterity. It is not probable that Smith's operation will ever be popular among surgeons whose experience is merely gained by the mengre opportunities that practice in Europe affords.

Gortie is another disease which seems destined to yield its secret, and in India McCarrison has continued his good work on this subject

Plague has been prevalent but less has been written about it, and the great Manchuria epidemic of a purely pneumonic plague has been the chief subject of discussion

We have gladly chronicled the surgical work of several of our great hospitals and as most surgeons read these reports with interest, we shall gladly publish others.

During the year we have had to chronicle the loss by death of several well-known men in the service and retired, such as Van Someren, Busteed, Reeves, Powell, Dallas, Andrew Duncan, Holmes, Gordon-Price, Webb, Warburton, Watson, and Oldham, many well-known men have retired and the service is the poorer by the retirement of Shore Sykes, Pratt, Clarkson, Thomson, Hore, Earle and Bensley. As usual Service men has this year added their quota to the list of published books, and excluding that splendid series of Scientific Memoirs, we have had the following books, first and foremost that evel useful I M S Manual by Seton and Gould; Alcock's Entomology; Hehm's two military books on Disease and Inefficiency and on The March; Clemesha's important monograph on the Bacteriology of Water in the Tropics, D McCay's valuable monograph in the International Scientific Series The Proteid Element in Nutrition, Overbeck-Wright's Mental Derangements in India and Bryson's Lunacy Manual Among the small books we may mention of Paterson's useful little handbook of Sanitation for Indian Troops, Castor's List of Instituments for Operations, O'Gorman Lalor's Dispensary Code and his Malaria Campaign in Italy, and the just published book by Budwood and Roberts on Clinical Methods for Indian Practitroners.

### THE SERVICE DURING 1912

THE orders of the Secretary of State restricting the growth of the civil side of the service remain in force, though we understand the question will be considered de novo by the Public Services Commission, but one new appointment has been created, the Agency Surgeoncy Serstan, which had formally been treated as a seconded appointment

A new Inspector-Generalship of Bihai and Olissa has been held during the year by a Lieut-Colonel The formal recognition of this as a Colonel's appointment, as well as sanction to the Surgeoncy to the Governor of Bengal are awarted In the changes consequent on announcement made at the Durbai the cadies of the three areas concerned have had to be readjusted, Assam retains its Inspector General, but loses its Inspector of Prisons and Sanitary Commissioner, both of whom are transferred to the new province

One of the most noticeable events of the year is the reorganisation of the Sanitary Department. The appointment of Sanitary Commissioner with the Government of India has been filled, but the conditions have been modified, in so far as that officer is under the Director-General except as regards giving technical advice to Government. He becomes, what he was not in the past to anything like the same extent, a touring officer, and he is relieved of much of his routine office work and of the administration of Research and the Bacteriological Department, which are now directly under the Director-General

As regards the Sanitary Department generally several changes have been sanctioned, the appointment of their Sanitary Commissioners is now in the hands of Local Governments, provided that no officer with less than 15 years' service may be appointed without the sanction of the Government of India, and their tenure, which has hitherto been limited to 7 years extensible by 3 years, is now unlimited.

Deputy Sanitary Commissionerships are no longer limited to officers of the I M S, the total number of these appointments has been considerably increased, but the number of I.M S officers holding them remains, for the present, unaltered.

The Bacteriological Department has not been increased in cadie, but, in addition to the 11 I M.S. officers on that cadie a large number of

others,-averaging 12 throughout the yearhas been employed on special duty in connexion with research It has recently been definitely ruled by Government that service in this department does not in any way prejudice the claims of officers to promotion to the administrative rank. There has been doubt on this point in the minds of many officers, and the matter is now settled. As regards the prospects of the individual in the department, it has been decided that an officer will be informed within eight months of his first being appointed whether he may hope to be confirmed in due course The present difficulty is that the cadre is a small one, and vacancies occur very rarely A recent concession sanctions a minimum of Rs 225 staff to an officiating officer without a permanent regimental appointment, if under five years service and Rs 250 if over five years Another concession places officers of the department on the same footing as Chemical Examiners in regard to fees for examinations, etc., carried out by them, ie, instead of crediting to Government half the fees received, only 4 per cent has to be so credited The benefits of the various Presidency "House allowance" schemes have also been extended to the department

Professional appointments—The most important event during the year has been the sanction of the Secretary of State to the creation of a School of Tropical Medicine in connexion with the Calcutta Medical College. This school will be staffed by the Principal, and the Professors of Pathology and Biology at the latter institution, who will draw Rs. 200 staff. The new tropical school should have a great future before it, and it is understood that courses of instruction carried out there will reckon as "study" for the purpose of accelerated promotion.

Among miscellaneous appointments there have been a few changes. The Senior Medical Officer of the General Hospital, Madras, now draws Rs. 150 staff, the pay of Superintendent of the Campbell Medical School and Hospital has been raised from that of a Professor of corresponding rank plus Rs. 150 to Rs 1,500 in the case of Majors and Rs 1,800 Lieut-Colonels A local allowance of Rs. 200 has been sanctioned for the Resident Medical Officer, General Hospital, at Madras, the R M O, General Hospital, Rangoon, gets Rs 1,100 and quarters, the Calcutta resident appointments are no longer restricted to Lieutenants and Captains, and the

pay, when held by a Major is Rs 800 The "Statistical Officer with the Government of India" has become an additional Secretary to the DG, IMS, for sanitary and research purposes, and the military statistics, which were formerly under him, have been transferred to the Director of Medical Services

A temporary appointment of "Government Serologist" has been made, and the incumbent whose researches on human blood stains are well known, will hold courses of instruction

On the military side of the service there has been nothing particular to note in the way of change. The Native Hospital scheme is again under consideration by Government, and a pronouncement thereon may be made shortly. A committee has revised the whole of the field equipment and the field medical organisation modernising them in every way.

An addition has been made to the Lieutenant's promotion examination, in the shape of the subject D III, military organisation, on the other hand, the rule prohibiting officers from appearing until the completion of 18 months' service has been rescinded, and they can now go up after a year. Field organisation will in future form part of the special course which all Lieutenants attend on joining in this country.

The extension of the accelerated promotion concession to the end of the 16th year has been a great boon to the service, and twelve officers have, in consequence of its introduction, regained their position in the Army List. A reference to the October Army List will show that of the last 126 Majors, 86 obtained accelerated promotion, or 67 per cent.

### CASUALTIES

The service has lost 18 officers from all causes during the year Of these two died, two have been placed on permanent half pay, these were superannuated and one went on account of ill-health, only ten retired in the ordinary course of events Of the whole, three retired on promotion to Lieut-Colonel, and one Major and one Captain were placed on half To argue from this (as an ill-informed correspondent in the British Medical Journal does), that there are indications of men trying to get out of the service on the first opportumty, is absuid As a matter of fact, the average casualties for the past 20 years have numbered 30 annually, so the year 1912 is an unusual one, in the small number of casualties it

#### PROMOTION

Three vacancies have occurred in the Colonel's list during the year, one in completion of tenure and the other two a result of ill-health. The Madias establishment has been fortunate in securing three steps during the last two years, with an establishment of four Colonels, while, in the same time Bengal has had only three promotions with an establishment of nine.

Of advancements to the list of "selected" Lieut-Colonels there have been three on the Bengal establishment, one in Bombay and two in Madias, a very small number Madias men are still far more favourably placed in this particular step than those of the Bengal and Bombay establishments, the last Madias Lieut-Colonel to be advanced had  $20^{-0}$  years service, whereas the corresponding figures for Bengal and Bumb y are 2511 and 2415 respec-The same difference is to be found among the Colonels, the lengths of service of the latest promoted having been 28,5 Madias, 26 Bengal, and 2011 Bombay The Madias block in the higher ranks therefore has been followed by a remukable flow lower down

#### T M S PROMOTION 30 YEARS AGO

THE death of Dr Dallas" calls to mind the agitation which followed the reduction several administrative appointments in I M S in 1880, and the indignation caused among the senior officers by some of the which followed thereon promotions amalgamation of the military medical administration of the A M D and of the I M S in India, which had previously been carried on by a double set of officers, one from each service, however necessary in the interests of Government, bone very hardly on the senior executive officers, owing to the reduction in the number of administrative posts which neces-The I M S, as a whole, sarily followed received a fairly adequate compensation in the grant of administrative rank, as Surgeon-General, to the Sanitary Commissioners of the five chief provinces, when they reached twenty-six years' service, which was then supposed to be the normal time at which promotion to administrative rank might be expected, though even then, except in a few specially favoured cases, thirty years was more

like the actual time To the senior Bugade Surgeons, however, the fact that their juniors in the Sanitary Department were promoted over their heads, was small consolation for the loss of the promotion which they might reasonably have expected The new system, indeed, only lasted for six years, and only one Sanitary Commissioner in each province got the benefit The administrative rank bestowed on the Sanitary Commissioners was abolished in 1886, and the "extra compensation pensions" given to the Service instead, a more equitable By the grant of these pensions anangement the compensation for loss of promotion went, in most cases, to the actual sufferers, and not to then fortunate juniors, who had already gained rather than lost by the change

The hardship inflicted on the senior Brigade Surgeons by the reduction in the number of administrative appointments, was enhanced by certain cases of selection for promotion which to k place in the next few years Brigade-Surgeon W. Walker, Inspector-General of Jails in the N-W P and Oudh, was promoted on 26th October 1882 to be Deputy Surgeon-General and A M O of that province, with the title and local rank of Surgeon-General, he stood twelfth in the list of Brigade And when Bugade Surgeon Dallas was promoted to be A M O of the Punjab, on 9th September 1884, he also stood twelfth on As both officers had held the post of Inspector-General of Jails in their respective provinces, it almost seemed as if tenure of such a post was, in future, to be almost a necessary stepping stone to administrative rank probably the majority, of the officers passed off, sent in memorials against their supercession As a matter of fact, five of the officers superseded by Dr Walker, and two of those superseded by Dr Dallas (including one who was passed over by both), were subsequently promoted to Deputy Surgeon-General others, who were superseded by Dr Dallas, got the offer of promotion, but preferred, and were allowed to retain their posts in civil employment

# Aurrent Topics

THE CULTIVATION OF THE MALARIAL PARASITE,

THE following extract from the Journal A. M A sums up the work of Bass and Johns

of the Tulane School of Tropical Medicine on the cultivation of the parasite of malaria —

"Bass" in 1911 announced that he had successfully cultivated the parasites of the three forms of malaria As set forth in a recent note, Bass and Johns were later sent by the Tulane School of Tropical Medicine to Central America and carriedon work in Panama in the cultivation of the plasmoia and the development of a technic A fuller report of this work has recently been made, and some interesting conclusions have been drawn or suggested Bass and Johns were able to culti vate the parasites in human serum, in Locke's fluid from which calcium chlorid is omitted, and in human ascitic fluid Positive cultures of the parasites have been made in the three forms of malaria and have been carried as far as four generations from the parent cul-The technic in the cultivation of a single generation differs somewhat from that for the cultivation of successive generations The parasites will grow only in 1ed blood corpuscles and it was found necessary to add dextrose to the culture-medium which seems to have a protective influence on the parasites within the red blood-corpuscles. When the parasites segment and escape from the red blood-corpuscles, they are immediately attacked and destroyed by the leucocytes, when these are present. The serum is also destructive of the In the cultivation of more than one gener ation, the leukocytes must be removed from the culture medium, as otherwise the parasites are immediately destroyed at segmentation. Only the asexual cycle has been observed in the cultures, although there were indi cations that the sexual forms might also be cultivated
It is the conclusion of Bass and Johns that the

plasmodium in the blood of a patient can pass from cell to cell only when the cell is in direct contact with another cell containing a segmenting parasite, and then only when the opening for the exit of merozoites occurs opposite the cell to be infected. This probably occurs frequently in the small capillaries through which the non segmented parasite cannot pass, its protoplasm being less yielding than that of the red blood cells found that blood drawn within one or two hours after a full meal was more serviceable for culture mediums than if drawn after fasting, which corresponds with the clinical observation that the parasites will often disappear in the blood and the paroxysms will cease if the patient is put to bed and given a purgative with a light Calcium salts when added to the culture mediums were found to cause hemolysis of the infected as well as the non-infected cells, and the authors suggest this as an explanation of malarial hemoglobinuma, the amount of calcium salts in the blood being perhaps slightly augmented by the calcium in drinking water or in food Only a slight excess of calcium over the normal amount is required to produce this effect. Hemolysis from the calcium in non infected, normal blood does not occur"

In the Annals of Tropical Medicine (October 18th, 1912) there appears a short note on this subject by Dr J A Sinton, who, on Sn Ronald Ross' advice, has been working at this point in the Liverpool School Dr Sinton states that "in none of my cultures was I able to satisfy myself that any increase, either in number or size, occurred in the parasites"

The matter is therefore still non-proven

## PLAGUE IN THE PUNJAB IN 1911

Wr quote the following extracts from the report by Lt-Col Browning-Smith, IMS, on

plague in the Punjab, as given in the annual Sanitary Report submitted by Lt Col Wilkinson, IMS, the Sanitary Commissioner, Punjab

The course of plague during the first half of the year of considerable interest. During the first three is of considerable interest months plague incidence was actually lighter than in the corresponding period of 1910, and there was every hope that the annual visitation would be less severe In April, May and June, however, the epidemic became much more intense than in the previous year, an excess of over 50,000 deaths being shown in these three months this uprush was due in my opinion to the heavy general rain which fell about the middle of March and, presumably, the subsequent great increase in flea prevalence encouraged by the warm and humid conditions that were established, and also to the deferred summer and late appearance of that temperature factor, a mean temperature of 85°Fahr, which coincides with the end of the active plague season, the figures did not show any decrease till about the middle of May, and even then the diminution was much slower than usual, the province therefore experienced a longer plague season than in 1910, when the maximum was The hot weather was severe and dry, reached in April and consequently the disappearance of plague was more complete, and by the end of the year plague occurrences were but a ninth of those at the end of 1910,-a circumstance suggestive of a mild epidemic in 1912, especially if the spring should be dry

In only two places in the Punjab were signs of active plague actually apparent throughout the hot weather One of these was Rawalpindi city, where infection was imported in April, and rat mortality and human plague continued throughout the summer, and in a village, Mallupota, in the Jullundur district, where 1at mortality was noticed in June, July and August Rawalpindi city was responsible for the importation of plague cases into no less than thirty-five different places, to villages in the neighbouring country, and to towns along the line of iailway as far south as Delhi and Gurgaon, in spite of this only three epidemics had resulted by the end of the year, one of which was at an end, one neighbouring village was infected from Mallupota, there were therefore at the end of the year three infected centres caused by those places showing infection throughout the summer Epidemic plague, however, reappeared in 39 villages, where no evidence of importation could be elicited, these places were usually remote from the railway, far from each other, and most of them had been infected in the late spring and early summer but no rat mortality or human plague had been apparent during the hot weather They were, in fact, examples of the recrudescence of plague These villages examples of the recrudescence of plague These villages had by the end of the rear led to the infection of eleven others by importation, these recrudescences appeared principally in the southern half of the Punjab, which received good rain in September, and were far removed from the active importing centre, Rawalpindi city, which is in the extreme north

Evacuation is popular in certain aleas, the districts of Jhang, Shahpur and Lyallpur the Rewaii tahsil of Gurgaon and in the low hills. In the part of the province it is very unpopular and seldom taken advantage of In twelve months, out of 7,485 villages infected only 504 were completely evacuated. In Jhang, Lyallpur and Shahpur 44 per cent infected villages were completely evacuated, in the remainder of the province, less than 4 per cent.

131,519 inoculations were performed during the twelve months. This is a much larger number than has ever before been done in a year, except in the inoculation campaign of 1902 03. To a great extent the number varies directly with the severity of plague, as the operation is not generally accepted except where plague is present, but it is certainly a fact that inoculation is becoming better known and appreciated and, nowadays, a certain number of people actually come to hospitals and ask for

<sup>\*</sup> Bass C C The Journal A M A, November 4, 1911, p 1534

incculation,—a procedure which was practically unheard of till the last year or two

Recently a weapon has been added to our almouly which should prove of great value It has been shown that simple exposure to a sun of 116" Fahi minutes is sufficient to kill all fleas in clothing, and even in such thick articles as quilts, we have here, at last a simple and inexpensive method of attempting to prevent infection being imported from infected to healthy localities, and every effort is being made to educate the people to appreciate the value of this simple procedure In addition to its being taught generally, the plague staff are directed, directly infection is discovered, to warn all surrounding village, explain the process to them, select proper sites for exposure and implore them to carry it out, placards explaining the measure, in Urdu, Gurmukhi and Hindi, have been freely distri buted, and Government have meanwhile made it a penal offence for persons from an infected village to enter a healthy one against the wish of the inhabitants, until this process has been carried out. The people generally are widely aware of the danger of people coming from infected areas, but social and religious customs are against refusal of access In a certain rumber of cases, however, persons with plague have been refused entry and lodged outside the village. It is hoped that in time a great deal of infection will be prevented by this simple

Everywhere the value of simple hygienic measures is taught to the people in quite a large number of villages the inhabitants have been persuaded to clean up and deposit their filth and refuse outside the inhabited area instead of in the streets, lanes and compounds of the village itself, the results may seem small, but I am sure continual education is having a certain result

All the medical staff are supplied with portable medical and surgical equipment, and a large amount of relief is thus distributed, especially to places far distant from dispensaries. This is proving a great boon, and is much appreciated by the people

#### PLAGUE MEASURES IN HONGKONG

WE quote the following extract from the Hongkong Medical and Sanitary Report for 1911 —

"The measures upon which the Colony relies for the prevention of plague consist in (1) the exclusion of iats from all dwellings by means of concreted ground surfaces, the prohibition of ceilings in the native quarters, the prohibition of hollow walls and the protec tion of all drain openings and ventilating openings by iron gratings, (2) the collection and bacteriological examination of all dead rats—facilities for their collection in the native quarters are provided in the shape of small covered bins attached to lamp posts, telephone posts, electric light standards, etc These bins contain a carbolic acid disinfectant, and the inhabitants are invited to at once put into them all rats found or killed by them There are 650 of these bins distributed throughout the city and its subuibs, and each of them is visited twice daily by rat collectors who take all jats found in them to the Government Bacteriologist 1 at 18 at once labelled with the number of the bin from which it is taken, and if subsequently found to be plague-infected, a special survey is at once made of the block of houses in the immediate vicinity of such bin, all rat-holes and 1at runs are filled up with broken glass and cement, defective drains and gratings dealt with, and rat poison freely distributed to the occupants, while the occurrence of several plague infected rats in one locality is a signal for a special house to house survey and cleansing of that district. The disinfectant in the rat bins is renewed not less than once a week, (3) the destruction of 1ats by poison, traps and birdlime boards, special effort in this direction being made just before the onset of the regular plague season which in this

Colony is March to July, (4) the encouraging of the community to keep cats, (5) the systematic cleansing and washing out of all native dwellings at least once in three months with a flea killing mixture-kerosine emulsion, (6) an efficient daily scavenging of all streets and lanes and the removal of refuse daily from all houses coupled with the provision of covered metal dust bins for all houses to reduce as far as possible the amount of food available for rats (7) the disinfection of plague infected premises by stripping them and washing them out thoroughly with the kerosine emulsion coupled with the disinfection of all bedding, clothing, carpets, rugs etc , by superheated steam lvo objection is laised to the treatment of bubonic plague cases in native hospitals, and no restrictions are imposed in regard to the burial of those dead of bubonic plague, except the provision of a substantial coffin, while every effort is mide by means of lectures, addresses and explanations to induce the native population to parti cipate in the above preventive measures"

#### DIPLOMAS IN PUBLIC HEALTH

The recent orders of the Government of India about the appointment of Health Officers must draw attention to the regulations in force for the attainment of a "British Diploma in Public Health," we therefore quote the following from our contemporary—The Medical Officer (28th Sept) Degrees or Diplomas are given by the Universities of Oxford, Cambridge and Dublin, and by London, Aberdeen, Edinburgh, Belfast, Durham and Birmingham Universities

"The resolutions adopted at various times by the General Medical Council dealing with such qualifications are embodied in the rules set out below -

Rule 1—The curriculum for a Diploma in Sanitary Science, Public Health, or State Medicine shall extend over a period of not less than nine calendar months

Rule 2—Every candidate for a Diploma in Sanitary Science, Public Health, or State Medicine shall have produced satisfactory evidence that, after obtaining a registrable qualification, which should be registered before admission to examination for the diploma, he has received practical instruction in a laboratory or laboratories, British or foreign, approved by the licensing body granting the diploma, in which chemistry, bacteriology, and the pathology of the diseases of animals transmissible to man are taught

Note—The laboratory instruction shall cover a period of not less than four calendar months, and the candidate shall produce evidence that he has worked in the laboratory for at least 240 hours, of which not more than one half shall be devoted to practical chemistry. The laboratory course should be so arranged as to lay special stress on work which bears most directly on the duties of a medical officer of health.

Rule 3 — Every candidate shall have produced satisfactory evidence—

Either (1) that, after obtaining a registrable qualification, he has during six months been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of public health administration, under the personal supervision of—

(a) In England and Wales, the medical officer of health of a county, or of a single or combined sanitary district having a population of not less than 50,000, or a medical officer of health devoting his whole time to public health work, or

(b) In Scotland, a medical officer of health of a country or counties, or of one or more districts having a population of not less than 30,000, or

(c) In Ireland, a medical superintendent officer of health of a district or districts having a population of not less than 30,000, or

(d) In the British Dominions outside the United Kingdom, a medical officer of health of a sanitary district having a population of not less than 30,000, who himself holds a registrable Diploma in Public Health, or

(e) A medical officer of health who is also a teacher in the department of public health of a recognised medical

school, or
(f) A sanitary staff officer of the Royal Army Medical Corps having charge of an army corps, district, command, or division, recognised for this purpose by the General Medical Council, or

(9) An assistant medical officer of health of a county, or of a single sanitary district having a population of not less than 50,000, provided the medical officer of health of the county or district in question permits the assistant officer to give the necessary instruction and issue certificates

(2) that he has himself held for a period of not less than three years an appointment as medical officer of health of a sanitary district within the Bittish Dominions, and having a population of not less than

Note (1) The certificate for the purpose of Rule 3 (1) must include testimony that the candidate has attended under the supervision of the person certifying, on not less than 60 working days

Provided that if the candidate has

(1) produced satisfactory evidence that he has attended a course of courses of instruction in sanitary law, vital statistics, epidemiology, school hygiene, and other subjects bearing on public health administration, given by a teacher or teachers in the department of public health of a recognised medical school, or

(11) produced evidence that he has been a resident medical officer in a hospital for infectious diseases, containing not less than 100 beds during a period of

three months

The period during which he has been engaged in acquiring practical knowledge of his duties under this rule may be reduced to three months, to include an

attendance on at least 30 working days

Rule 4—Every candidate shall have produced evidence that, after obtaining a registrable qualification he has during three months attended at least twice weekly the practice of a hospital for infectious diseases, at which he has received instruction in the methods of administistion

Note (1) - Methods of administration shall include the methods of dealing with patients at their admission and discharge as well as in the wards, and the medical

superintendence of the hospital generally

Note (2) - In the case of a medical officer of the Royal Aimy Medical Corps, a certificate from a principal medical officer under whom he has served, stating that he has during a period of at least three months, been diligently engaged in acquiring a practical knowledge of hospital administration in relation to infectious diseases, may be accepted as evidence under Rule 4

The Rules 2, 3, 4, as to study, shall not apply to medical practitioners registered, or entitled to be regis-

tered, on or before January 1st, 1890

Rule 5 - The examination shall have been conducted by examines specially qualified, it shall have extended over not less than four days, one of which shall have been devoted to practical work in a laboratory, and one to practical examination in, and reporting on, subjects which fall within the duties of a medical officer of health including those of a school medical officer"

# WHEN THE DPH IS AN ESSENTIAL QUALIFICATION

"Since January 1st, 1892, no one can hold the position of medical officer of health in any county, or in any district or combination of districts with a population of 50,000 or upwards, unless he is legally qualified in surgers, medicine, and midwifery, and is registered as the holder of a Diploma in Sanitary Science, Public Health, or State Medicine under Section 21 of the Medical Act, 1886, or who was, during 1889, 1890, and 1891, medical officer of a district or combination of districts with a population of 20,000 at least, or who was for three years previous to August 13th, 1888, a medical officer or inspector of the Local Government Board" [Local Government Act (Eng and Wales), 1888]

### AMERICAN OPINION ON ANTI TYPHOID INOCULATION

THE Journal A M  $\boldsymbol{A}$ (October 12th) has three good articles on the proved value of anti-typhoid inoculation, all are agreed as to its We can only efficacy and great usefulness quote the following extinct from the paper by Di E W Hachtel and Dr H W Stoner of Baltimore -

"In conclusion, we are convinced that anti typhoid vaccination is of incalculable value in the protection against enteric fever, and owing to the undue incidence of this disease in hospital nuises and attendants, they should be urged to submit to inoculation Indeed, we feel that the authorities in control of such institutions who do not offer their nurses this protective measure are negligent in the extreme In public institutions, especially in hospitals for the insane and mentally deficient, moculation should be employed in reducing the number of cases of this malady In the latter hospitals great care should be exercised as to the selection of patients for immunization, avoiding those of advanced years and those suffering from chronic organic distur bances such as arteriosclerosis and cardiac and renal diseases

Considering the bulliant results obtained, the very slight inconvenience usually experienced following the vaccination, the atrocious number of cases of typhoid fever occurring yearly in both the city and the country. and the extreme complexity of the problem of lessening this attack-rate by sanitation, it is our firm conviction that all civilians should be advised to be inoculated against this disease. Naturally we do not advise antityphoid vaccination as a substitute for proper sanitary When we think of the extreme difficulty of control coping with typhoid, however, and the length of time it will require to attain the ideal of sanitation, when we consider that even under the best sanitary conditions we still have to fear the typhoid carrier, direct contact and the danger of introduction from without by visitors and by citizens, we believe that anti-typhoid inoculation will have a place in the prevention of this disease in civil life, and that boards of health should not only advise the adoption of this measure, but should also distribute the vaccine free of charge for the immunization of the citizens of their respective communities"

# ZEISM, A DEFECTIVE MAIZE DISEASE.

In the Transvaal Medical Journal for July 1912 (p 261), Di P A Nightengale, MD, of Rhodesia, gives an account of a disease which he attributed to defective "mealies" (maize) and eleven cases of which occurred in the Victoria Jail, S Rhodesia We quote from Di Nightengale's account the following -

"Early in March, 1912, my attention was drawn to a prisoner who had been in Jail for nearly two years, and had another twelve months to serve, for three months previously his general health had been below par, so that he had been put on only very light work, but he now suddenly began to lose weight with most alarming rapidity and to look very ill, he complained only of indefinite pains in the

chest, an eczematous eruption on the lips, and of peculiar "buint" areas of the skin—which will be described later on "

A few days later another case was found and on examination 9 more cases out of a total of 90 prisoners (11 cases out of 90)

Di Nightengale's description of the disease is as follows —

Occurred equally among hard labour prisoners and those awaiting trial. With one exception (an elderly man, whose weight afterwards fell to 96 lbs), they were all particularly well-built men, and had been in juil for periods ranging from three months to two years Roughly speaking, some 15 per cent of the prisoners were affected.

At the onset they complained of indefinite pains in the chest, soleness of bones, and a general feeling of weakness. A few had distribute for two of three days Temperature 99° to 101° in the evening and subnormal in the morning. Pulse averaged 88 Respiration normal longue somewhat four Later on, in severe cases, epithelium was lost, and it then resembled a raw beefsteak, but with no ulceration of teeth indentation. Phary no very inflamed and angry looking. Teeth and gums normal. Appetite small Intermittent attacks of vomiting only in severest cases and then only for two of three days. Food usually well digested. No glandular enlargement of special gait. Reflexes normal No ankle or wrist drop.

Extraordinary rapid loss of weight, one case losing two stone in ten days, and others averaging a daily loss of a pound, patients being rapidly reduced to a skeleton in consequence, muscles correspondingly flabby

In severe cases there was an eczematous eruption in the upper lip and angle of mouth, resembling the eruption which usually appears at the end of the first attack of malarial fever. The majority of the cases also had a blocking of the sweat glands on the also nasi, showing up as innumerable white spots. At first sight this looked like a loose scurfy skin, which at times also appeared on the forehead.

The most characteristic and invariable symptom of all was a peculiar blackening and thickening of the skin, exactly resembling a localised severe sumburn which began on the back of both forearms midwly between the elbow and wrist. This "burnt" area was oval in shape, three inches long by one and a half broad, and, except in the severest cases, did not affect the skin over the outer edges of the radius and ulna. The outer border of this area was extremely sharply defined, and in every case was absolutely symmetrical on both forearms. It was slightly raised, not itchy, nor was its sensibility affected as far as could be ascertained.

In one very bad case this "buint" area within eighteen days spread completely round the forearms, and ended an inch above the bend of the albow in the shape of a blunt pointed triangle, here, again, the sharply-defined black edge and absolute symmetry of both sides was a most striking feature

Three of the cases had similar symmetrical patches on the inner aspect of both calves. In one case these patches spread completely round the legs, but did not extend above the knee or on to the dorsum of the feet Four of the cases were similarly deeply "burnt" on the upper part of the chest and round the neck, corresponding very closely to the area of the skin exposed when the upper button of the shirt was undone. The edges were, as on the forearms, sharply defined Nothing abound was detected in the internal organs. All were aniemic but not markedly so. Heart failure in one case caused great anxiety. The health rapidly improved when "Mealies" were stopped and rice, meat and vegetables issued.

## GUINEA WORM DISEASE RESEARCH

WE quote the following valuable note on a subject which has received of recent years too little attention. It is taken from the Report of the Bombay Bacteriological Laboratory—

Di Tuikhud, M. B., C. M. (Edin.), has been responsible for the work in connection with the study of Dracontiasis. It will not be out of place here to give a brief account of this disease, which is very prevalent in certain parts of the Presidency and which is often a serious cause of sickness although not of death. In some parts, the disease is so prevalent that the Agricultural Department has found it necessary to issue a handbill which describes how the disease is spread.

The disease is caused by the guinea worm filarial medinensis. The worm as a rule produces few symptoms except perhaps urticaria or intense itching until a little vesicle appears on the skin generally near the ankles, but occasionally in other parts of the body. The worm can often be felt as a cord beneath the skin before the vesicle is noted. The little vesicle bursts and from it a little turbid fluid exides. In the centre of the ulcer left by the bursting of the vesicle lies the pointed extremity of the worm. The fluid which is ejected by the worm will be found to contain myriads of minute embryos or young worms which can swim about actively in water.

In 1870 Fedschenko showed that these embryos soon die in water unless they find, in the water, a small clustacean of the genus cyclops. This cyclops is a minute transparent creature only just visible to the naked eye, a little smaller than the head of a pin. In some way yet undetermined the embryo worms enter the body cavity of the cyclops where they live for some weeks. Certain changes take place in the young worms in the body of the cyclops which fit them for their next stage of development in the body of man

It had been suggested by Manson and proved by Lopier in 1907 that the cyclops containing the young worms are swallowed in drinking water by man In the human stomach the cyclops are killed by the gastric juice, but this very juice at the same time activates the young worm within the body of the cyclops The young worm makes frantic efforts to escape from the body of the cyclops darting about from side to side Finally it emerges and penetrates the wall of the man's The worm at this stage measures about onefiftieth part of an inch, it grows gradually, and in the course of a year, the female worm has attained a length of about thirty inches Meanwhile the worm has wandered from the region of the stomach to some other part of the body most often to the tissues of the leg The mature female worm is practically a long slender bng filled with minute worms, the embryos mentioned above These embryos as we have seen must find then way to water containing the cyclops, else they soon perish. To maintain its existence the worm has therefore to pass from man into a cyclops and from a cyclops back to man

Di Turkhud's observations have shown that the intermediate host of the guinea worm, i.e., eyclops is a very common inhabitant of all ponds and wells in Bombay and can be readily collected by the following method which is found to be the most satisfactory one for securing these copepods in large numbers from any collection of water. About a bucketful of water should be carefully strained in small quantities at a time through a piece of fine muslin. I'he cyclops will be caught on the muslin from which they can be transferred by dipping the upper surface of the muslin into the water contained in a wide-mouthed tottle. In addition to cyclops, water fleas and a whole host of other animalcules are stranded on the muslin, the larger of these, as shrimps, beetles, and such like creatures should be removed before the muslin is dipped into the water of the collecting bottle.

The stock of the cyclops obtained in this way can be kept alive in the Laboratory in a suitable glass vessel At least two species of cyclops have been observed in Bombay both of which can act as intermediate host for the guinea-worm. Other crustaceans, such as, Diaptomus and Daphnia failed to act as intermediate hosts for

Two interesting points in the life history of cyclops have been observed which go to explain the marked

seasonal prevalence of the disease

First it has been noted that the cyclops begin to multiply about the month of March and are very abundant throughout the rains The number of cyclops to be found in water begins to diminish with the close of the rains During the winter months only a few can be found and these commence to multiply, as mentioned above, about the beginning of the hot weath er

The second point of interest is that cyclops apparently prefer to live and feed near the bottom of a well so that they are most likely to be found in a sample of drinking water when the well is low, that is, during the hot weather

It is interesting therefore to know, so far as general observation goes, although no actual statistics are available that the guinea worm most commonly causes inconvenience in man (that is, when it makes its way to the surface of the body to discharge the joung worms) in the hot season and rains, just the season, be it noted when cyclops are most numerous and when they are most likely to be found in drinking water

This is not the place to describe the minute structural changes which take place in the worm during its sojourn in the cyclops. We may mention, however, that by repeating Leiper's experiment in which he placed cyclops containing larval guinea-worms in a very weak solution of hydrochloric acid, similar in strength to that found in the gastric juice, we confirmed his observation that the cyclops was soon killed and that the worm became very active and escaped from the body of the cyclops

Although this disease is very common in certain parts of the Bombay Presidency two thousand cases for example having been reported to be present in the famine camps in the month of March in the Panch Mahals district, yet the disease is one which can be avoided by the simple method of passing all distriking water through a piece of fine muslin. The cases in the famine camp must have been infected a year previously and could not therefore have been prevented by any arrangements made for supplying water at the camps

In addition to the simple method of straining the water through muslin there are of course other more radical and efficient methods of checking the spread of radical and efficient methods of checking the spiead of disease. These methods endeavour to prevent persons suffering from the disease from immersing their bodies especially their feet in water which is to be used for drinking purposes. The persistence of the disease in certain areas despite the fact that it can be prevented by simply straining the drinking water through muslin can only be accounted for by a want of knowledge among the people of how the disease is spiead. This among the people of how the disease is spread. This is a state of affairs which I think might easily be

# SALVARSAN IN SYPHILIS.

Two special numbers lie before us dealing with syphilis, the Journal American Medical Association (October 5th, 1912) and the Supplement (October 1912) to the Proceedings of the Royal Society of Medicine. Both are very valuable but both are too long to do more than refer to, so we will confine ourselves to a brief note on the position of salvarsan as a "cure" for syphilis

In a masterly summing up of the discussion in London, Sii Henry Morris states that the debate revealed "an unanimous agreement as to the efficacy of salvaisan but differences of opinion (a) as to the best system of administration, (b) as to whether or not it permanently cures syphilis, (c) as to whether it should be given with mercury or alone, (d) if with mercury as to when the mercury should be commenced. and (e) in what form mercury is best employed Salvaisan has gient disadvantage, each dose has to be prepared ad hoc and with great care, precision and manipulative skill . . . It is not free from serious risks It is not a semedy to be employed by every busy practitioner nor used on patients who unable or unwilling to submit to the precautions which should be taken to make the treatment safe"

If it is proved that salvarsan given at any period between the primary chancie and the roseolar eruption which ushers in the second stage will prevent syphilis in its latent form (nerve degenerations, tabes, general paralysis) then it will be our duty to see that it is administered.

The discussion in America is much to the same effect Salvaisan has not lived up to its early promise "It does not effect a complete cure of syphilis," "merculy is almost invaliably called into its aid." Salvaisan should be combined with the established measures of treat-There is no doubt of the value of salvarsan as a symptomatic nemedy. The senious accidents from salvarsan cannot be overlooked.

On the whole, we must conclude that salvarsan has not succeeded in establishing itself as a "cure" for syphilis. Probably its use in association with a mercuital course is the best.

In the Edinburgh Medical Journal (October 1912) Capt F F Strother Smith, 1 MS, has an interesting article on the advisability or the reverse of using the Smith operation for cataract as a routine measure in persons over 30 years of age He at once acknowledges that extraction in the catalact is "a much more difficult operation to perform than the capsule laceration operation." This being admitted he recommends the operation in such places as Vienna where six times as many catalacts are operated on as in any place in the British Isles Capt Smith Wlites -

"Probably two or three a week would represent the ordinary number of cataracts operated on by any one of the leading ophthalmologists in this country, whilst on the Continent eighteen to twenty a week would be about the average

On the Continent, therefore, extraction in the capsule should be the operation of choice, because there is plenty of material I am assuming, o course, that the results obtained by this method are far in advance of those obtained by the old method, the operation being performed by a competent surgeon the operation being performed by a competent surgeon in both instances. This fact is now beyond dispute, as it has been proved over and over again by statistics which have been published during recent years by many

trustworthy ophthalmologists Since the operation of extraction in the capsule has been perfected by Smith, it is very noticeable that operators by the capsular method have published no detailed long series of their results or of the complications at the time or after operation, such as has been done in the Smith opera

Written descriptions of this operation are almost useless to the surgeon, unless he is prepared to follow up his reading by a visit to the clinic of an expert Having done this, he will find that the operation has no terrois for him, and that every step of it is free from difficulty It is very noticeable how easily young sur geons who have done little or no cataract work become proficient, the reason, of course, being that they have nothing to unlearn"

"THE scheme of life insurance without medical examination is based upon a profound knowledge of human nature For some reason of other the average candidate for insurance, no matter how robust his frame may be seized with horrid fears in the presence of the examining physician So dieaded is the ordeal, indeed, that it is not improbable that not a few persons avoid insurance on that ground alone. So that any plan which avoids the medical examination is sure to cause a good many weak-kneed individuals to succumb to the wiles of the insurance agent As a matter of fact, candidates who grasp at the shadow of non-medical examination find themselves in the long run buildened with its substance The office substitute is a stringent list of questions, which the proposer is required to answer, and upon which a no less stringent scale of extra risk premiums can be based The actuary respon sible for non-medical examinations is not likely to eri on the side of leniency, as the proposer will probably and to his cost As a matter of fact, the method is carried out at the expense of the public, which is sedu ced into accepting a costly substitute for legitimate medical services. The non-medical examination is wide ly advertised by a certain office and it is a matter of some surprise that under the circumstances they are issuing to the medical profession a general appeal for support. It is impossible altogether to escape the reflection that this old established office is thereby adding insult to injury "

As these methods are not unknown in India we have thought it useful to reproduce the above note from the Medical Press and Circular (October 9th)

THE observations of  $D_1$  De Bonis (Pathologica, vol 1v, n 87) on the excreta of people who remained healthy during cholera epidemics, He found appear to be of great significance that cholera vibrios were present in the excreta of patients convalescent from cholera for five days in the greater number of cases, but that the time of their persistence varied from two to During those periods the forty-three days various individuals were possible spreaders of He also found that, during cholera epidemics, it was possible to isolate vibilos from the excreta of healthy people, which corresponded morphologically and biologically with those isolated from the excreta of cholein patients. The vibios gave all the reactions of true choleraic vibrios but in some cases they were more virulent, and the nucleo-proteids extracted from them had specific toxic properties

ABDERHALDEN and Hanshan [Ztsch fun phy chem 1912 (113)] in an examination of what they vaguely call "Asiatic calculi" state that calcium was invariably present, also by frequently magnesium and phosphoric acid They sought for the explanation in an examination of the staple food of the inhabitants, and they state that the wheat is "noher in calcium and magnesium that the corresponding wheat products of European countries"

In India the great comparative prevalence of 'stone' among wheat-eating races of India as compared with its iailty among lice eaters' was pointed out by Major Einest Roberts, I.M.S. (retd), at the first Indian Medical Congress in Calcutta in 1894 The subject is one which should be worked out

"Prof M J Rosenau, of Harvard University, an nounced at a meeting of the Fifteenth International Con gress on Hygiene and Demography at Washington, September 26, that he had apparently succeeded in transmitting poliomyelitis (infantile paralysis) from sick to well monkeys by the bite of the common biting fly, Stomorys calcitrans He allowed a number of these flies to bite monkeys sick with poliomyelitis in various stages of the disease and then later allowed these same flies to bite 12 well monkeys Of the 12 well monkeys thus bitten 6 became sick with well-marked symptoms of poliomyelitis, and of these 3 died Three of the 6 monkeys thus infected had diaithea and symptoms of enteritis during the course of the illness

The Stomoty's calcitrans resembles in size and appearance the common house fly It is most frequently found in and around stables. It is, however, by no means uncommon in houses It bites animals as well as man, and sucks their blood upon which it feeds

Dr Rosenau concluded from his experiments that, after the virus of poliomyelitis is taken into the body of the fly by biting an infected animal or person, some time must elapse before the fly is capable of transmitting the disease, and that the period which must thus elapse is probably less than 21 days"—(Pub H Reports, Sept. 27)

# Reviews

The Care and Treatment of European Children in the Tropics—By G MONTAGU HARSTON, M D Buillière, Tindall and Cox, London, Price 7s 6d O1, 8vo 1912

EXCEPT the ever new and invaluable book well known as Buch's Management of Children in India, we know of no book which can be compared to Dr Harston's new book on the Care Indeed the wonder of Children in the Tropics is that we have had to wait so long for such a book, for Buch's well-known book is written primarily for the mother or layman while this new book is written for the practitioner.

This handy little volume consist chapters and some 230 pages, and deals with climatic factors, incidence of disease, general considerations of hygiene and the care of Eulopean infants in the tropics. Then come chapter on the various diseases to which flesh in the tropics is hen to. These chapters are up to date and full of information, perhaps the rather full accounts given of the ethology and pathology of these diseases are hardly wanted in a book devoted to children. Beautiful coloured and plane plates of microscopic appearances could well have been omitted as every practitioner has them in other books.

However this is a minor matter, and few of us are the worse for reading such descriptions

ovei again

We have read the book with profit. It is accurate up to date and instructive, and we can honestly recommend it to civil surgeons and practitioners in India, we may not agree in all cases with the author's recommendations on treatment, but they are the outcome of considerable experience in China

We again recommend the book, as one which should certainly be in the library of every

physician in India

A Text-Book of Medicine — By DIEULAFOY, Plofessor of Clinical Medicine at the Faculté dé Medecine de Pairs Second Edition, being the authorised translation of the 16th Edition of the "Manuel de Pathologie interne" by V E Collins, M D, and J E LIEBMANN, Ph D London Bailliere, Tingall & Cox, 1912 Plice, 25s net

Of the first edition of the English translation of the work 17,000 copies were sold in two years! Doubtless this second edition will as amply repay the enterprise of the publishers

Dieulafoy is a pupil of that great master of medicine Trousseau, whose mantle has descended on his pupil, as all who read this admirable exposition will agree The translators have done then work well, and the characteristic clarity and thought of the French teacher has been preserved, as well as the charm of description that is a feature par excellence of the French Chinicians' description of their cases a feature which, unfortunately, is so conspicuous by its absence from the painstaking work of the Teutonic internists After all the bedside and the patient must come before the laboratory and the test-tube if we in practice are to derive pleasure and profit from and study of a textbook of medicine

Not that Dieulafoy neglects the light that are thrown on morbid phenomena by the lamps of the bacteriologists—and serologists—far from it, but from first to last he studies the patient and the various morbific elements—that war against him

The chapters on diseases of the lung, stomach and kidney will come as a revelation to many who have been nurtured on purely British medical pabulum. All who practice surgery will derive benefit from a perusal of the chapter on appendicitis and its results—which, to our mind, sets at rest for ever the question of early resustant perusal of the chapter.

Those who know but little about diseases of the biains and spinal coid will find much that will be of service to them in the clear description given of these diseases

Certainly a book which should find its place on the shelves of every one who practises medicine

Aids to Tropical Hygiene—By Major R J BLACKHAM, DPH, RAMC London Baillière, Tindall & Cox, 1912 Price, 3s net

This little work contains a mass of up-to-date information as to the Tropics, compiled from various sources, mingled with notes probably made by the author when studying for his public health diploma. It is well worth the small sum charged for it

Mental Derangements in India their Symptoms and Treatment—By A W OVERBECK-WRIGHT, M B Calcutta Thacker, Spink & Co, 1912

In this handy volume Captain Overbeck-Wright has set forth a great deal of information which will be of use to the medical practitioner in India He goes very fully into the question of leucocyte counts in cases of mental disorder, but we are not prepared to endorse his statements that for the treatment of incipient cases of insanity "Saline purges or enemata of normal saline solution should be regularly administered every third or fourth day," and that "hypnotism is, on the whole, best left alone in asylum practice and in our dealings with insane cases" For Captain Overbeck-Wright does not suggest the use of that substitute for hypnotism which is now enjoying so much attention in Europepsycho-analysis We would advise our readers to buy this book and study it All will find something useful in it

The Course of Operative Surgery—By Prof Dr Victor Schmieden Second Enlarged Edition, translated and edited by Arthur Turnbull, with 435 plain and coloured figures Bailhère, Tindall and Cox, 1912, pp 365 Price, 12/6

PROF SCHMIEDEN'S name alone should vouch for the high standard of the book under review From its perusal we can strongly recommend it to all desirous of possessing a thoroughly upto-date and useful book on operative surgery. The book containing, as it does, practically an account of the practice of Prof. Bier's clinic in Berlin, is what it is named "A Course of Operative Surgery" and does not pretend to be a book of reference.

The printing is large, rendering the book easily read and the illustration are excellent and add distinctly to the value of the book. It is unfortunate, however, that on page 295 the diagram of the biliary tract and associated blood vessels, which we are told to bear constantly in mind, depicts the hepatic artery entering the

transverse fissure behind, instead of in front of, the portal vein

The author rightly insists on the wearing of gloves, even at an operative surgery course

Right through the book we come across short paragraphs on anatomy which are exceedingly helpful, also the author is most careful to point out the pitfalls and difficulties which one usually encounters. For instance, we read on page 29 that, on incising the palm, "the fat pouts out in rather a troublesome way"

In the chapter on amputations the different methods of treating bony stumps are discussed and prove interesting reading. In Chapter 4 under the heading of vessel anastomosis a comparison is made between the method of suturing blood-vessels and that of suturing intestine which is exceedingly appropriate. The edges of the incision in the former operation being everted while in the latter they are inverted.

Kronlam's scheme of cerebral topography, is the scheme followed in Bier's clinic for locating the various fissures, etc. It is simplicity itself and might be thoroughly got up by all students intending to practise brain surgery.

In the chapter on the abdomen we are pleased to see the transverse supra-pubic incision of Pfaurenstiel recommended

Some of the descriptions of operations are, however, rather cursory, for instance, that of amputation of the penis.

In median lithotomy it is always better to pass a director into the bladder along the groove

before the grooved staff is removed

Mention is made of the operation of cholecystotomy being performed in two sittings. We are sorry this is not simply mentioned to be condemned, as nowadays, the one sitting operation has become practically as safe and has the incomparable advantage of permitting the finger on the outside of the gall-bladder to assist in the extraction of calculi and in exploration.

We would also point out that, after the treatment of hydrocele by V. Bergmann's operation drainage is absolutely essential, not merely

advisable

The Kocher's operation described is not the Kocher's operation for inguinal herma with which we are familiar. Its description is somewhat difficult to follow.

We have not found it necessary to ligature the ophthalmic artery in enucleation of the eyeball, as is suggested here. It is a pity that in the chapter on joints no remarks are made about the excision of semi-lunar cartilages. This operation is ignored.

The following errors have also been noticed by us:—On page 75 "High amputation at the elbow" should surely read "High amputation

of the forearm"

On page 108 mention is made of the insertion of the peroneus longus when origin is really meant.

On page 199 "Subpeniesteal" in place of "Subpeniehondrial" resection of the 6th cartilinge is talked of.

The description of Lenander's Pararectal mersion does not tally with the illustration No 270 In the illustration the skin incision and the incision through the oblique aponeurosis appear to be made to the inner side of the outer edge of the rectus (our usual practice) whereas in the text we are told to make the incision through the aponeurosis half an inch to the outer side of the rectus

Surely it is never necessary to do an extraperitoneal puncture of the bladder through the space of Retzius in the living subject if a

catheter can be passed

In the appendix a short account of lumbar puncture is given. In it the following sentence occurs "you can tell a successful puncture by the feel of the instrument as it enters the spinal cord," and this, after we have been already told that the puncture should be done below the termination of the cord which occurs at the lower border of the first lumbar vertebra

At the risk of being accused of labouring minutize we could point out many more

punter's errors

In spite of any shortcomings and faults which may have been pointed out, we reiterate our opinion that the work can strongly be recommended to all desirous of possessing one on operative surgery.

A Text Book of Practical Therapeutics— By Hobart Amory Hare M.D., Bisc Fourteenth Edition, pp. 384, Plates 6, Figs. 132 Price 21s Publishers: Henry Kimpton, London; Alexander Stenhouse, Glasgow

A BOOK in its fourteenth edition requires little recommendation from the reviewer success of this volume probably depends in part on its general scheme. It is divided into The first deals with four parts therapeutic considerations, such as the mode of action and of administration of drugs, incompatibles, and prescription writing second treats of drugs and their therapeurics The third is devoted to the consideration of remedial measures, other than drugs, and of The fourth deals with diseases and then In the second part the section of treatment most interest at the present time is probably The method of administrathat on salvaisan tion is adequately described and illustrated, and its indications and contra-indications clearly indicated. In the third section the effects of counter-mutation, and heat, hyperæmic treatment, and matters of a similar There is a clear descripnature are described tion of the treatment of locomotor ataxy by the re-education of co-ordinate movements, so that even one who had to depend entirely on his knowledge of the system on this description could give his patients a satisfactory course of treatment. The excellent book closes with two full indices, one of drugs and remedial measures, and the second of diseases and their remedies.

First-Year Nursing - By Minnie Goodnow Published by W B Saunders Company

We consider this one of the best books on nursing we have read. It really is a book on nursing, and not an account, often maccinate and always without first-hand knowledge of anatomy, physiology, and bandaging. Not only does it treat of nursing only, but it does so fully, practically, sanely, and sympathetically, and aims at, and is likely to accomplish its aims of, making the nurse, what she should be, some one closely observing and acting for and by direction of the medical man during his absence from the sick room.

Asphyxia Neonatorum - By N N Bosu, L M and s Published by the Author, Price 12 annas.

This is a very complete and useful booklet on the important subject of asphyxia in the new boin. The author Asst-Singson N N Bisn is the teacher of Midwifery in the Dacca Medical School and received a good training as House Surgeon in the Eden Hospital, Calcutta.

The subject is one of vast importance when we consider the great number of lives lost through the ignorance and improper treatment in the households of natives of India; and when we read in our author's words that "during childbed the woman in a Hindu household is a "polluted thing" (italies are the author's), the merest touch of her entails purification of clothes and body and perhaps ablution in holy water of the Ganges. She is literally deserted by her friends even by her own parents during childbed. In orthodox families she is generally confined in the most deserted unclean and ill-ventilated cellar"

It is difficult to believe that such a state of savagedom could exist in these days when there is so much talk of and so much money spent on higher education in India

If the conditions surrounding the entiance into life of the natives of Bengal are so terrible as depicted by Di. Bosu, the sooner his useful little book is widely read and studied the better. The book contains a complete and accurate account of the life of the fœtus and the new-born child and can be certainly recommended.

We hope that when a second edition is called for the enormous list of misprints and errata will be absent

Plague and Malaria — By A L DOMODARAN, Salem "T. A C" Press, 1912

This useful little pamphlet is an "Easy outline of the cause, prevention, treatment of Plague and Malaria" It is the first of a series intended to deal also with cholera, small-pox, etc.

The writer is painfully aware of the ignorance and superstition of his countymen and is determined to help to remove them in some degree

The statements made are accurate and practical, and we recommend this little brochure a wide circulation of it among educated Indians could be most useful

### Clinical Bacteriology and Hæmatology Emery

This book has now reached its fourth edition. It is divided into three parts. Part I deals with bacteriology, and is divided into three sections, the first on apparatus and processes, the second on the diagnosis of certain diseases, and the third is on the collection and examination of certain morbid materials. In Part II hamatology is considered, and in Part III cyto-diagnosis is dealt with. In the appendix a table regarding weights and measures is given and three special methods of staining organisms.

The book is primarily intended for the use of practitioners at home and will fully meet their requirements. It is essentially practical and shows the reader how to adapt appliances of everyday life for the purposes of his investigation and so avoid the use of costly appliants. The practitioner in the tropics, however, has different problems in this relation to deal with, and in this work these are hardly touched upon. To those who require a short, clear, and practical account of clinical bacteriology and hæmatology this book can be confidently recommended.

# SPECIAL ARTICLES

1

### STUDIES ON PNEUMONIC PLAGUE,

THE June number of The Philippine Journal of Science (vol vii, B No 3) is devoted to studies on pneumonic plague and plague immunisation based upon the work done during the terribly violent epidemic of plague, pneumonia in Manchuria in the winter of 1910-11

We have already discussed the Report of the International Plague of onference but we have seen no report at all approaching in completeness and interest the studies by Dr R P Strong and Dr Teague of the Manila Bureau of Science

The first "study" give an account of the conditions of work, the second is devoted to the method of transmission of the infection

We quote as follows -

- "I During normal and dyspnosic respiration of primary pneumonic plague cases, plague bacilli are not usually expelled by means of the expired air
- 2 During coughing of such cases, even when sputum visible to the naked eye is not expelled, plague bacilli in large numbers may become disseminated into the an surrounding the patient

The idea that infection of doctors nurses, attendants, etc. in plague hospitals is caused entirely by particles of sputum expectorated by the patient and visible to the naked eye is erroneous. It follows from these experiments that the wearing of masks and the proper

covering of any surface of the skin where fresh abrasions are present are important, personal, prophylactic measures against plague infection. It also follows that the eyes should be protected against this manner of conjunctival infection by proper glasses

Articles of clothing worn in the wards should be sterilized immediately after removal, since plague bacilli may be present even though no particles of sputum may

be visible upon them

From these experiments, also it is evident how dangerous an infective agent a pneumonic plague patient is In no other disease is the individual so dangerous and in no other disease does the danger from droplet infection approach that which exists in pneumonic plague. The number of plague bacilli expelled in dioplets from pneumonic plague cases is probably far greater than the number of bacilli ever expelled by patients afflicted with tuberculosis, croupous pneumonia, diphtheria, or influenza

During the epidemic the disease was evidently spread directly from man to man by droplet infection and by the more or less intimate contact of healthy individuals with an infected person Whatever may have been the primary source of the epidemic, its dissemination occurred entirely independently of tarbagans, or rats

The disease was introduced into uninfected villages and towns by the importation of individual infected with pneumonic plague or by those in the incubation period of this disease No definite bacteriological evi dence, that healthy carriers of the disease with plague breille in their sputum existed during the epidemic, has been produced. We had opportunity to examine two healthy individuals who were supposed to have given rise to the disease in other persons but who themselves We were unable to demonstrate any remained healthy plague bacilli in their sputum, and it was not infective

for gumea-pigs"

The next section by Dr O Teague and M A Barber is of great interest, and discusses the influence of atmos pheric temperature on the spiead of pneumonic plague. The writers contrast the bitterly cold weather of Manchuna where pneumonic plague was virulently epidemic with the climate in India where the pneumonic torm has never assumed epidemic proportions. In the cold climate there are closed, close and over crowded rooms, in India there is "usually a large water deficit in the an " (Temp 30° C) and dioplets of sputum, charged with the bacilli, " would tend to disappear quickly by evaporation" and the bacilli consequently would die, and they conclude that in low climates "the bacilli would remain alive longer" They then call attention to Capt A C Gill's paper on pneumonic plague which we published over three years ago  $-(I \ M \ G, 1909, p \ 135)$ 

We quote as follows -

"We believe we are justified in concluding from these experiments that were the plague organisms sprayed under similar conditions they would persist longer than cholera vibrios, but a shorter time than prodigiosus Hence, it seems probable that the plague bacilli contained in fine droplets of pneumonic plague sputum would suffer death from diving in a few minutes unless they were suspended in an atmosphere with an extremely small water deficit Infection in pneumonic plague fol lows the inhalation of droplets of pneumonic sputum and obviously the longer these droplets remain suspend ed in the air, the greater is the danger of infection has just been stated, these fine droplets disappear very quickly except when they are suspended in an atmosphere with a very small water deficit. Such an atmosphere is under ordinary circumstances of common occuiience in very cold climates, whereas it is extremely laie Hence, since the droplets of sputum ın waım ones persist longer, the plague bacilli remain alive longer in the an, and there is a greater tendency for the disease to spread in cold climates than in warm ones

In harmony with the above ideas, we find that the only great epidemic of pneumonic plague of modern times occurred in Manchuria during the winter of 1910

to 1911, when the atmospheric temperature was many degrees below zero centigrade The disease spread with amazing rapidity Furthermore, although during the past fifteen years there have been millions of plague cases in India and 2 to 5 per cent of these have been cases of plague pneumonia, yet this form of the disease has not assumed epidemic proportions. The largest epidemic of pneumonic plague in India (1,400 dea hs) occurred in Kashmir in Northern India at an elevation of 1,524 meters above the sea level during very cold weather

In the study on the portal of entry of the infection the writers do not accept the view that the tonsil is first infected and that purumonic plague is primarily a septi-comic disease. They state that the "primary point of infection is not the tonsils but some portion of the bronchi," the "blood becomes quickly infected and a true bactericamia results in every case" Primary septi

cæmia may occui "in some instances"

Dr Strong and Di Teague also have a valuable chapter on the clinical side of the disease. Out of 50,000 cases "only two or three undoubted bubonic cases" were found, all the rest were pneumonic incubation period was "usually two or three days" The disease usually "lasted less than two days" No cases uere known to have recovered during the Manchuran epidemic, a fact which raises this epidemic to a bad emmence over all reported outbreaks

It is known that it has been hinted that the great difference between this Manchurian outbreak and all the plague outbreaks which have worned the world for the past 16 years could only be explained by the view that the organism of this pneumonic plague differed from the C pestis of bubonic plague Such an idea, says Drs Stiong and Teague, is enoneous, and we refer our readers to section vi of this report for their reasons for

On the subject of untlence vague ideas have been discussed so it is well to quote the remarks in full from this report -

"The organism seems to have retained a maximum virulence throughout the epidemic, at least all of the cultures isolated and studied by moculation into immals possess this very high degree of virulence Cultures isolated near the close of the epidemic showed an equally high virulence to those isolated near its beginning. However, the idea that this epidemic of pneumonic plague was due to the fact that the strain possessed an abnormally high virulence-much greater than that possessed by the organism of bubonic plague - and that this accounted for the very high mortality during the epidemic appears to be erroneous The very acute course of the disease, the very high death rate during the epidemic as compared with that of bubonic plague and the apparently increased virulence of this pneumonic strain may be satisfactorily explained by the fact that the portal of entry of the organism and the location of the primary points of infection in pneumonic plague and in bubonic plague are different. The plague organism finds in the pulmonary tissues a much more favourable and extensive medium for its multiplication and diffusion than it does in the lymphatic glands In bubonic plague, the lymphatic glands may be said to act as filters against the general invasion of the organism by the plague bacillus, while in primary pneumonic plague there is no such mechanism for the defence of the host, the bacilli spreading rapidly throughout the lung and invading the circulation in every instance in a comparatively short time and apparently before the organism has had time to produce any appreciable quantity of immune substances. The bronchial lym phatic glands in primary pneumonic plague offer resistance to the invasion of the plague bacillus, and in every case of this disease these glands are very acutely inflamed and frequently almost of a black colour from the resulting toxic hemorrhages in the glandular However, by the time the bronchial glands have become involved, the bacteria have already spread so extensively throughout the lung substance that a bacterænna has usually occurred Microscopical preparations made at necropsy from the lungs of these pneumonic cases invariably contain enormous numbers of plague bacili In no other disease are the organisms found in such great abundance In primary pneumo-nic plague, the bacilli are found in very much greater number in the lung than in the spleen, even though an advanced bactenemia is present. This fact, also suggests that the lung tissue offers a more favourable location for the growth and multiplication of the bacilli than does the spleen The bacteria are also present in fai greater numbers in the lung than they are ever found in the buboes or spleen in bubonic plague It is, also, evident that in pneumonic plague the infected lung (which may be said to correspond to the primary bubo of bubonic plague) contains, by reason of the size of the infected area a far greater number of plague bacilli than the primary bubo in bubonic plague During epidemics of bubonic plague, there are occasionally small epidemics of pneumonic plague in which the same high mortality and acute course of the disease is observed as occurred in the Manchulan epidemic of pneu-monic plague This is another argument in favour of the fact that during epidemics of bubonic plague the causative organism may show the same high virulence As examples may be cited the epidemic of bubonic plague ın Japan-ın Kobe and ın Osaka ın 1899 to 1900-in which 13 cases of primary pest pneumonia all terminated fatally after a very rapid course, and the epidemic of bubonic plague in 1898 in Bombay in which, toward its close 11 cases of pneumonic plague also all quickly succumbed one after the other

All this evidence is in favour of the supposition that the organism giving lise to the present epidemic is of no greater virulence than in the case of many bubonic strains, furthermore, definite proof of this fact has been obtained from compriative moculations made in animals with different pneumonic and bubonic cultures

There is an admirable section on pathology in which reference is made to the earlier work of Lieut-Col Child, the late Major Evans, and Captain Elphick, i ms It is decided that the pneumonia is primarily lobular, but nevertheless "very early lobar involvement was very much more frequently encountered at necropsies"

There is a useful chapter on animals and pneumonic plague, and it was proved bacteriologically that the tarabagan or marmot is "susceptible to primary plague pneumonia". The chapter on protective inoculation against pneumonic plague is not encouraging. The writers decide that Haffkine's vaccine is practically use-

less is a protective against pneumonic plague
"In conclusion, our experiments have demonstrated that vaccination does not afford the same protection against pneumonic plague that it does against bubonic plague in experimental animals. They indicate strongly that prophylactic inoculation cannot be relied upon as even a reasonable means of protection against pneumonic infection in man. It would appear that a proper mask furnishes the only reliable method of protection"

A very interesting chapter on the efficacy of various masks as a protection against pneumonic plague concludes this valuable report. Ten per cent of the doctors, student policemen, sanitary staff and ambulance parties who worked in this epidemic died of plague at Harbin, 297 out of 2,943 workers, all the sanitary staff were supposed to wear masks, but they were not always properly applied or used

We quote as follows -

"In Mukden the mask which was almost universally employed consisted of a pad of absorbent cotton about 16 by 12 centimeters and about 15 centimeters thick, this was wrapped in gauze, the ends of which were tied at the back of the head. A many-tailed bandage composed of three layers of gauze with holes for the eyes was tied around the entire head and served to press the mask firmly against the face and to keep it snugly in place for hours at a time. When first put on, this mask was decidedly uncomfortable, but after a few minutes

one became somewhat accustomed to it and could wear it for two or three hours at a time. There was, however, always an intense feeling of relief on removing it. We shall designate this type of mask in the discussion to follow as the 'Mukden mask".

#### CONCLUSION

The "Mukden mask" in general use during the epidemic of pneumonic plague in Manchuia, during the winter of 1910 to 1911, does not prevent the passage into the mouth and nostrils of B prodigiosus when contained in small dioplets sprayed around the mask. This mask consists of a pad of absorbent cotton held over the mouth and nose by a many-tailed gauze bandage

- 2 A hood of heavy Canton flannel cloth, covering the entire head and tied in singly at the neck withstands much severel tests than does the Mukden mask. It does not, however, offer an absolute barrier to the passage of prodigiosus bacilli into the mouth and nostrils of the subject. This mask, with a window in front, is not more inconvenient nor more uncomfortable than the Mukden mask.
- 3 It is shown that the inefficiency of the Mukden mask is not due solely to the fact that the mask fails to conform to the configuration of the face, but that the bacteria may pass directly through the mask, for a piece of most cotton placed in the centre of the mask was found after the test to contain prodigiosus bacilli
- 4 It is believed that, although masks hold back many bacteria that would otherwise pass into the mouth and nostrils, nevertheless their use during the recent epidemic of pneumonic plague in Manchuria lent a false sense of security which may have led to the taking of unnecessary risks. We believe that these experiments fully justify the conclusion that masks such as were used in that epidemic do not offer an absolute protection against pneumonic plague.

#### ΙI

# MAJOR FRY'S REPORT ON MALARIA IN BENGAL

This is the first report on Malaria in Rengal by Major A B Fry, ims, md, dtm, and it incorporates a preliminary report previously issued. The term Bengal used in this report is used in a non-official sense as the work done previously to the momentous changes of 1st April 1912 are reported upon

We need not refer to Major Fiy's useful preliminary chapters on the physical features and climate of Bengal, but in his second chapter he draws some very important conclusions as to the real mortality due to malaria in this portion of India We quote them in full—

"The conclusions to be drawn from these enquiries are —

- (1) That the percentage of error in the figures for total births and total deaths is small. As the conditions do not vary, we may presume that this error is also constant. Therefore calculations based on annual variations of total births and total deaths are approximately correct.
- (2) That the heading 'fever' includes all febrile diseases except small-pox and the majority of cholera and plague cases. One third or less of the cases under the fever heading are due directly or indirectly to malaria.
- (3) The remaining two thirds of the cases classed under the fever' heading is made up of deaths from multifarious diseases and in all probability does not greatly vary from year to year. Therefore the annual fluctuations of the 'fever' death-rate are a measure of the variation of malaria mortality."

Major Fry gives a list of nine anopheline mosquitoes found by him in Bengal The N Fuligmosus, though

extremely prevalent is a very inefficient carrier in Bengal at any rate

On the question of the nature of big spleens the following extract is of interest —

"Touring from village to village, it is impossible to make splenic punctures. I have seen many chronic kala azai cases in Paina and Puinea Districts and find nothing approaching the number in this division. If kala-azar is at all rife as a fatal disease a fair number of advanced wasted cases must be seen. They are extremely rare in Lower Bengal.

In my preliminary report I wrote that two places in Murshidabad District, vi-, Tarak pur and Choa, were hot beds of kala azar I judged on ground of enor mous proportion of large spleen and extremely low endemic index. I have had these places under observation for 1½ years and find that no deaths have occurred, and all the children are recovering and their spleens are much smaller though endemic index is very low. They appear to be residual spleens from an earlier outbroak of malaria.

I am of opinion, therefore, that splenomegaly is chiefly due to malaria, and that the small error due to kala-azar may safely be neglected"

The hyper endemic area of Bengal is the Nadia and Jessore Districts, the South of Murshidabad and the Northern part of Nadia and 24-Perganas

Types of Fever —Bonign Tertian are the most common, quartans are not common, mixed infections are probably common.

The following extract is better understood from a comparison of the charts given in the Report —

"This chart is typical of Lower Bengal, and shows that there are two rises of the mortality curve—the one culminating in April and the second in November or December. The month of minimum mortality is usually July, but occasionally June. This table shows the very large proportion of total deaths to "fever deaths" and the close correlation between the two curves. It also shows that there are considerable variations from year to year, thus the years 1897, 1898 were extremely healthy and seem to have paved the way for an exceptional autumn epidemic in the year 1899. The autumnal rise shows very constant features, beginning generally in September, progressing through October, reaching its maximum in November and remaining at the high level well into January. This makes it coincident with the cessation of the rains and the onset of the cold weather. In view of the considerable number of the respiratory diseases which the verification tables in Chapter II show to be prevalent in Bengal the fall of temperature must be taken into account as influencing the winter death rate.

From the evidence of the dispensity admission rates it would appear that the season of new cases begins in July. Therefore one must assume that either new infection must be occurring or that relapses are brought on by some cause or another. The onset of the rains produces a slight fall of temperature, and men working in the fields are alternately soaked and dried which may account for a certain number of relapses. But the steady rise of the sickness rate shows that something more than relapses is occurring

I think then the sequence of events is a season of new infection beginning in July with sickness from cente mataria following in its train. These apparently increase pair passi until a maximum of sickness is attained in October, in which month morbidity is at its height. That the maximum of mortality is not reached until two months after the maximum of morbidity is evidence that uncomplicated malaria is not a directly fatal disease in an endemic area, and we can account for winter deaths on the ground of long continued sickness and consequent economic stress."

The following extract deals with the important question of the hyper-endemic area and with that of the

effect of the dead river Bhairub in the town of Jessore —

### THE HYPER-ENDEMIC AREA.

"The most striking fact that I observed during my tours in Jessore and Nadia was that all the villages were so uniform as regards their spleen rate. Anywhere in these districts every single village showed a hyperendemic spleen rate over 50 per cent. Though very large old villages, much buried in jungle, especially if near a bleel, had the highest spleen rate, yet newer villages situated in comparatively open and dry areas were never free from a high degree of malaria. Map No 3 has been specially prepared to show this point and gives the figures of a complete juvenile spleen census of every village in two large thanas. I specially chose the Sadar thana of Jessore as it has attained a notoriety through the energy of local inhabitants, who have succeeded in drawing attention to their particular locality to such an extent that several schemes of dramage have been proposed. This area was also suitable on account of being traversed by a dead river, the Bhanub

This chart is made out on a jurisdiction map shewing village limits. From the survey map of the area I have copied in all the livers bheels, etc., and marked them in blue wash. The figures give the percentage of enlarged spleen amongst the children in each village.

This chart confirms my previous observation of the universal extension of hyper endemic malaria. All the villages have a spleen rate over 50 per cent, and it well shows the gradation of the spleen rate, each village having a rate more or less proportionate to the surrounding villages. Villages on bheels and khals appear to have a slightly higher rate than the average, as do those on the river Bhanub, but there is not that striking variation which one might reasonably expect. Villages on the higher land well away from rivers and swamps participate in the general malaria infection. It seems that malaria in this region is behaving like a contagious disease, each village poisoning its neighbours.

This area is a fair sample of any part of the endemic area and the conditions in the regions traversed by the livers Kumar and Nobogunga are the same as in the valley of the river Bharrub

The general average spleen rate of the Bagharpara thana and western part of Jessore thana is lower than in the centre of the Jessore thana, but these figures were collected in May and June and those of Jessore in early March, which would account for the small difference.

This survey was primarily intended to decide the question of the Arool Bheel Drainage Scheme which it was proposed to carry out at a cost of Rs 10,75,000. The idea was to improve the flow of the Bhairub by emptying into it the waters of the blieel.

I think a study of the chart is sufficient to show that a local drainage scheme of this nature could make very little difference to the malaria of the neighbourhood. The villages round the Arool bleel, which are even now comparatively healthy, might improve slightly, but one has only to inspect the Bhairub liver at Jessore to see that a great deal more water than that from one swamp is required to improve the flow.

If the Bhanub niver were the centre from which malaria spread to the surrounding country, there would be some object in trying every expedient to improve it, but this chart clearly shows that malaria is not distributed in any sort of relationship to this river, and to develop such a local scheme would be to touch only a small part of the large area of hyper-endemic malaria

Having examined the conditions within the endemic area I next turned to a part where malaria is not hyper endemic to seek by contrast an explanation of the causes at work in producing a high degree of

malarial endemicity It was on completion of the survey in Jessore that I visited the Hooghly and Howiah districts which are on the east side of the river Hooghly in the Burdwan Division Starting in the Howrah district and the south of the Hooghly district the villages were universally healthy, i.e., spleen rates were below 10 per cent. It was not until I reached the north of the district that I found malarıa rıfe"

Major Fry pertinently remarks -

"If, as I have suggested, the spread of malana is due entirely to the Myzomyia group, it may be that the stagnant swamp is the healthiest part because of the absence of running water in which these species

Everywhere in writing this report when endeavouring to explain causes I am brought to a standstill by our present lack of knowledge as to which species of mosquito is the chief carrier of the disease in Bengal"

Major Fiy refers to the recommendations of the Dramage Committee

"The question of jungle and of tanks and borrow pits I have dealt with and also with promiscious defectation I do not agree that drinking water-supply is bad compared with the drier areas of India The question of cultivation of rice in close proximity to houses is, in my opinion, of less importance than they make out my report on Chota Nagpui (Chapter lV) I shall show that where there are no permanent breeding places to maintain the supply of mosquitoes during the dry season of the year, rice is grown all around the villages without producing either mosquitoes or fever

I thoroughly agree that village savitation is at the root of the matter, and that the persistence of endemic malaria is due to the facilities offered to the mosquitoes to maintain a full supply throughout the winter and dry season ready to increase and multiply with the

extension of breeding places

The Committee say that the recommendation of their medical experts as to mosquito nets is highly desirable, but their adoption is never likely to be popular them in use in Hooghly and Howrah

With regard to mosquito destruction they say that experimental operations should be started. I can only repeat that we must first know which species are to be Anti-malarial measures were started by a special grant to several municipalities, but were reported on as failures I have only close knowledge of the work in one municipality, viz, Berhampore, where the Municipal Commissioners wasted the money in a very expeditious manner"

On the attitude of the people the following remarks are of interest

"Among such a child-like people various practitioners of medicine of all kinds can do a large trade I hesitate to use the term quack for many of the halim and kabiraj class practice a system of medicine which has the authority of long usige Their fees are suited to the purses of their patients and their methods of treatment appeal strongly to then imagination

These men use large quantities of quinine always made up into liquid form Some use it openly, others Some use it openly, others conceal their use of it, owing to a prejudice against the drug which has somehow arisen and is fostered by those

This brings me to the next point the attitude of the educated Bengali Of course the great majority hold the same views as Europeans as to the benefits of western system of medicine in general and of quinine in particular, but unfortunately there is a small majority led by teachers of homocopathic systems of medicine who bitterly oppose the use of quinine and say that quinine not only has no effect on malaria, but actually produces a fever precisely the same as malaria besides leading to renal troubles and producing sexual impotence and

As long as a portion of the educated community hold such childish views there is little hope for Bengal

"The vast bulk of the people are illiterate and ignoiant and apathetic. Then is one of resignation and their policy is to suffer in silence In the neighbourhood of Government charitable dispensaries the more enlightened appreciate the benefits of European medicine and bring the sick of their family for treatment. They, however, in the manner of the East, do not believe that they get good medicine unless they pay the compounder a small fee Often during my tour I have found cases needing treatment who, on being recommended to go to the nearest dispensary anxiously demanded a paper signed by me which they regarded as an assurance that they would get good medicine How far there is any truth in their belief I cannot say, but I am certainly of opinion that the mufassil dispensaries are not so popular as they should be Besides their distrist, the trouble of going a journey, the long wait and waste of a day's labour is sufficient to turn the scale Moreover, the villagers expect miracles If their medicine does not

immediately produce a cure, they condemn it as useless. They are quite ignorant of quinine. In the many villages visited during my tour I exhibited and distributed quinine to the sick and explained how it was to be I generally found that they took it willingly and accepted without question my word as to its value I was always received with friendliness and, though the visit of a Government official to an out-of-the-way village, where a white man is seldom seen, naturally created some alarm, with a little patience and explanation I could always get hold of all the children for spleen examination, and the distribution of a few

coins got me all the blood films needed"

Major Fry is continuing the work and especially devoting his attention to the discovery of the species which is the chief carrier and to an examination of the nature of the spring fevers

The whole report is admirable and reflects much

credit on Major Fry and his assistants

#### III

# TRAVELLING DISPENSARIES AS A PLAGUE MEASURE

THE Report of Colonel Manifold, IMS, in the working of the Travelling Despensaries in the United Provinces is one of very considerable interest, and as it is an experiment which will probably be followed in other provinces we cannot do better than quote freely from Colonel Manifold's account -

"It is impossible to consider plague administration in this province during the year under review without following closely the history and working of the 32 plague travelling dispensaries which were employed for the first time as a plague fighting agency

With the very severe and widespread epidemic of plague which occurred throughout the province in 1910 11, and the continued persistent refusal of the people voluntarily to adopt any of the measures offered them by Government, it almost appeared as if the only possible course remaining in the face of such apathy, suspicion, and sometimes even hostility, was to leave the people to their own devices and adopt a waiting policy which practically meant doing nothing

It was in these circumstances that, on being consulted by His Honour the Lieutenant Governor, I suggested that the travelling dispensary system of bringing medical relief to the very doors of the afflicted should

It was hoped that the sub-assistant surgeons in charge of travelling dispensaries working in the villages throughout the hot weather months, and treating every variety

of sickness during the period when plague is practically non existent, would gradually be able to gain the confidence of the villagers, and that, when attacked by plague, the people would naturally look to them for advice and help

The fact that free medical advice was obtainable in his own village would give the villager tangible evidence of the active desire of the authorities to assist him in his struggle with plague

It was also felt that, with this system of travelling dispensaries, an opportunity could be taken advantage of to give trial to a much wider organisation for medical relief than has yet been possible in this country. Hitherto a hospital containing 50 to 100 beds at head quarters and half a dozen dispensaries throughout a district has been all that a population of from \$\frac{3}{2}\$ to \$1\frac{1}{2}\$ million people could look to for aid in sickness.

The difficulty, which thousands must have experienced in obtaining any form of medical aid is proved by the eagerness with which the people avail themselves of it when within reach

Sir John Hewett approved of my siggestion, and although it was then the end of March and the sanction of the Government of India to the initiation of so large an organisation had to be obtained, the whole scheme was put in full working order by June

The services of four Indian Medical Service officers were placed at the disposal of this Government for plague duty, each of whom was appointed to the superintending charge of a circle containing eight travelling dispensaries

Four circles were formed, two in the eastern and two in the western part of the province. Each circle contained 8 plague dispensaries working over an area comprising two districts. The districts chosen had all a bad plague history and were as follows.—

Eastern districts—Circle I—Ballia and Ghazipui under Captain A. N. Dickson, i m.s.

Circle 11—Azamgarh and Jaunpur under Captain T. D Murison, 1 M s

Western districts — Circle III — Meerut and Muzaffar nagar under Captain E. Bisset, i M 8

Cu cle IV — Aligarh and Bulandshahr under Captain R. S Townsend, 1 M s

A carefully selected sub assistant surgeon was placed in charge of each dispensary

In addition to the 32 plague dispensaties, 12 other travelling dispensaries were started as malarial dispensaties in 12 selected districts, each being supervised by the Civil Surgeon These contained the same equipment as the plague dispensaries and carried out antiplague measures when the disease was prevalent in their districts.

All these 44 travelling dispensaries (32 plague and 12 malarial) were placed under the control of Captain H Ross, IMS, the Chief Plique Officer, who in turn worked directly under the orders of the Inspector-General of Civil Hospitals

The equipment, principally in tablet, pill, and ointment form was most carefully selected and was sufficiently comprehensive to treat all common complaints

A carefully drawn up code of instructions was issued for the guidance of the sub-assistant surgeons, special care being taken to impress on them the necessity for their living in close and friendly touch with the villagers, maintaining a sympathetic attitude in dealing with their complaints and always allowing them to come and talk freely, so that in time the villager would come to regard the "doctor babu" as in all respects his adviser and friend

It was impressed from the beginning on all sub assistant surgeons that their work would not be judged so much by their figures showing patients treated as by the good reputation they established in the area in which they worked The first step before these travelling dispensaries could hope to become active plague agents was that they should gain, as far as possible, the confidence of the people

From this point of view the success of the scheme was instantaneous and universal, even beyond our most sanguine expectations the great number of patients, treated during the year, 504,077 new patients, plainly showing the appreciation of the people

These figures are all the more remarkable when we consider that the year under review was an unusually healthy one and that it was the first year these dispensaries had worked, also that when a sub assistant sur geon is carrying out plague inoculation work he has little time to devote to treating patients

The villagers in all districts in which these dispensaries have been placed are profuse in acknowledging the benefits of the medical treatment which has now for the first time been brought to them

Their undoubted popularity with all classes is proved by something more tangible than the expressions of gratitude, which have been so freely expressed by all classes.

The only complaint so far heard has been that the dispensaries could not visit each village often enough

Perhaps the most eloquent testimony as to their success and popularity was provided when, in certain places, which had been visited by the travelling dispensary, the people had learnt to appreciate its presence in their midst so much, that following its departure they petitioned the Collector to open permanent hospitals, and in some cases the money for this purpose has been voluntarily subscribed by the people themselves

Again when the greater part of this province suffered severely from cholera throughout the latter part of last hot weather, the travelling dispensaries proved most valuable agents both in disinfecting wells and treating cholera patients

Again as regards malana, although the year under report was a comparatively mild year as far as malana was concerned, nevertheless 77,733 cases were treated In a bad malanal year the travelling dispensaries would be invaluable in dealing with malana and so long as they continue working they will always be on the spot ready to deal with any sudden outbreak of cholera or epidemic malana

Each dispensary is an agency for carrying out inoculation work and is equipped with a complete plague inoculation outfit. All the sub-assistant surgeons in charge have been carefully trained by their supervising medical officers to perform the operation efficiently

I have little doubt that even comparatively few moculations performed by the sub-assistant surgeons in charge of travelling dispensaries in various districts at the request of the people, and without the slightest compulsion or pressure, will bear fruit when plague becomes severe, as this year has already been shown in the case of Ballia, and I see no reason why these sub-assistant surgeons should not eventually take the place of assistant surgeons who are now employed as Special Health Officers for inoculation purposes

The weekly reports submitted by the superintending officers show clearly that the travelling dispensaries will, with good supervision and careful administration, in time become a highly organised system for the prompt detection and early reporting of disease, enabling us to gain a much closer acquaintance with, and a more accurate knowledge of, all aspects of disease as it occurs in villages, than we have up to now possessed

The first intimation of an outbreak of any unusual sickness in a village has, on many occasions, been received in consequence of the local patwari or mukhia writing to ask that a travelling dispensary might be at once sent to his village

The receipt of a vernacular report sent to Captain Bisset by the local patwari of the infected village stating that his village was severely attacked by a peculiar form of fever, unlike plague, and asking that a travelling dispensary might be sent there at once, led to the early discovery of what proved to be a widespread and unusually severe epidemic of relapsing fever, which might, under ordinary circumstances, quite possibly have been reported to be due to either plague or malaria

In this way all measures necessary to prevent the spread of the disease have been actually carried out by the travelling dispensary before the report of the presence of cholera or other epidemic disease has reached head-quarters through the usual official channels

Instances have occurred where, following the advice and teaching of the sub-assistant surgeon in charge of a travelling dispensary, new arrivals from plague-infected areas have been denied admission to villages by the local headman, who has insisted on the visitors camping outside, one large village was undoubtedly saved by this means from infection brought from a large town by a party who were refused admittance and camped outside, plague broke out severely among them but the village was not infected

Early notification of disease and, what is perhaps even more important, an accuracy in this, may be expected to result as the system of reporting by travelling dispensaries spreads. As things are, the Civil Surgeon has little time to give to the health of the district anywhere except at head-quarters, and has so far had no relief agencies to employ at once on the outbreak of an epidemic

In this connection Captain Bisset remarks—"In the weekly reports of sub-assistant surgeons submitted herewith each sub assistant surgeon has shown 13-16 cases of malaria as treated each week, after examining many cases I have only found the plasmodium in one and have only seen three or four in the month that clinically were malaria. I do not think those treated by the sub assistant surgeons are really malaria and think they should be returned under the heading of 'all other general diseases' until a correct diagnosis can be made"

A most important and far reaching development in which a start has already been made by travelling dispensaries is the operative treatment of disease in villages, including that of eye disease such as cataract

In Moradabad district Major Hunter, at my suggestion, has used the travelling dispensary as an agency for collecting from surrounding villages at some centre where not even a small district dispensary was within reach, cases suitable for operation. He visits this centre on a date arranged and operates on all suitable eye cases, arrangements being made for their accommo dation locally

The sub assistant surgeon is left to look after them until they are out of danger of any complication arising, the Civil Surgeon himself returning after about a week to see if everything has gone on satisfactorily

In this way between November and February Major Hunter, in the course of four visits made to different village centres, performed 64 cataract operations and 11 iridectomies Of these, 61 cataract cases and 10 midectomies were later verified by him as successful, vision being excellent in all

446 major and 9,018 minor operations have been done by the travelling dispensaries during the year

Each successful operation carried out in a village helps to advance the popularity of the travelling dispensary

In connection with this development it is interesting to note what the experience of the various superintending I M S officers has been

Captain Dickson in Ghazipur district says-"I think the prestige of the travelling dispensailes would be very greatly increased if operation work could be undertaken A very large number of cases met with in the villages have been advised to go into the Sadr

In all these cases Hospital for surgical treatment chits have been given to them for the Civil Surgeon, but I believe that hardly any of these cases have ever arrived at the Sadr Hospital

In some instances I have offered to take these cases back with me, but in every case the patient either finally refused to come, or disappeared "

He then relates how ready these people are to be operated on if the operation can be carried out near or at then own houses, instancing how he on ore occasion collected over fifty cases for the Civil Surgeon to operate on in a convenient village centre, on the Civil Surgeon being unable to come out, owing to illness, nearly all refused to undertake the journey to any of the district hospitals

This was in the Ghazipui district in which the Sadi Hospital has for long held the highest reputation for eye surgery, so that there was no reflection possible upon the skill of the Civil Surgeon

Captain Murison working in Jaunpui and Azamgarh districts says-"Hundreds will come to me for surgical advice, but when told that they must go to either the Sadr or some branch dispensary for operation, they disappear"

Owing to the great success attained by travelling dispensaries last year Government have sanctioned an increase in their numbers to 56 from 1st July, this number will be further increased to 60 in October These 6) travelling dispensaries will be allocated to 36 districts

I believe that travelling dispensaries bringing medical relief to the doors of hundreds of thousands of villagers who are otherwise miles away from any chance of medical assistance will have a most widespread effect on the contentment of the country

In concluding this report I must express my thanks to all the officials, as well as to many private gentlemen the districts in which the travelling dispensaries worked for their waim support

Of those directly concerned in the working I must tender my thanks to Captain H Ross, IMS, the Chief Plague Officer, for his zeal and good work

# Coppespondence

#### WHITE COLONIES IN THE TROPICS

To the Editor of "THE INDIAN MEDICAL GAZETTF"

SIR,-You may have become aware that the Federal SIR,—You may have become aware that the Federal Government of Australia contemplates the colonisation on a large scale of the Northern Territory, of which the major part lies within the tropics. At present there are only about 1,000 persons resident there, and there has been practically no development. It is commonly held by certain political sections in Australia that this great area can be settled permanently by immigrants of British birth and descent, and an attempt is to be made to induce such immigrants to go there.

go there
Several years ago I tried to persuade the Government to appoint a Commission of experts who should travel round the world and seek for evidence as to whether this colonisation of the Tropics by the British race had ever been accomplished.

but I was not successful in bringing about this proposal
I would therefore take the liberty of requesting you to
afford me some information on the subject, as you will be in a
position to judge whether English people or Northern
Europeans have been able while maintaining their racial
integrity, to thrive and rear healthy children for generations

integrity, to thrive and rear healthy children for generations in your part of the world. I refer particularly to those who have never left the country, not to those who, though born in the tropics, have been educated in England and have married English women. Another necessary qualification is that they have been accustomed to severe manual labour in the open, and earning only the wages of a working man, have not been able to go for a change to a cooler climate.

What is the physical, mental and moral constitution say, of a child of pure British descent, whose ancestors for three or

a child of pure British descent, whose ancestors for three or

four generations have all resided permanently in the tropics in the environment that a manual labourer could obtain

Does he retain all the virile qualities of the race, or are there evidence of degeneration in any respect?

I do not require any data regarding sanitation of the tropics as carried out so successfully at Panama and elsewhere. It is generally admitted that adult European males can maintain health and strength in tropical countries if certain precautions are taken

I seek for information regarding the women and children for the first and succeeding generations

I hope to lay the information collected before the British Science Association which meets in Australia in 1914, and also to make certain recommendations to the Federal Govern ment at as early a date as possible

I should also be glad to learn, if possible, if you have any knowledge as to how Southern Europeans stand tropical climates and if they compare favorably in this respect with English people I must apologise for troubling you, but they are a great Impossed and sets at stake in this matter, and there are great Imperial interests at stake in this matter, and these must be my excuse

Unless the problem of peopling Tropical Australia is approached from the scientific standpoint, it may result in a huge disaster

PARLIAMENT HOUSE, Yours faithfully (Sd) RICHARD ARTHUR SYDNEY MD, CM Edin

[This is a very important subject, and we hope replies will be sent to Dr Arthur. We shall also be glad to publish letters on the subject—En , I, M G ]

#### QUARTAN PARASITES AND KIDNEY DISEASE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—In the October number of your Gazette under "Gleanings from the Calcutta Post mortem Records," Di Leonard Rogers gives a list of common diseases associated with contracted granular kidney, but does not mention any relationship to parenchymatous disease of that organ

In the Journal of Tropical Medicine for May 1st, 1912, I endeavoured to show the association of this form of kidney disease with quartan malarial infection, and this was so frequent, 50 per cent, and the recoveries so rapid after the use of quinne that I have no doubt that quartan parasites are the cause of the nephritis in at least 50 per cent of the cases

I believe that the scrich for quartans in all cases of parenchy matous nephritis would lead to a great saving of life, and that this causal connection has not been pointed out hither to

I am,

Yours, etc.

J TERTIUS CLARKE,

Health Officer, Perak, South

### PROFESSIONAL EXAMINATION FOR SUB ASSISTANT SURGEONS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In a previous number of your Gazette a letter appeared from the pen of a Sub Assistant Surgeon in which it was urged that the third newly forced examination should be totally abolished. It does not appear that your correspondent has obtained your support in his appeal I do not think I am amply justified in proceeding against your opinion, but as a member of the profession fully interested in the subject under reference, I, for one, begyour permission to record my humble opinion in your esteemed journal, and I hope my brethren in the Bengal Establishment will concur with me Establishment will concur with me

Establishment will concur with me
Although I am in favour of the total abolition of one of the three grade examinations, I regret I am unable to vouch the opinion in its entirety of my esteemed friend, Dr H K Ahmad, as far as the principle is concerned, and I quite agree with you that the professional test although n ksome and verticus in spirit, is really useful to the public—and I may be permitted to add, to the service itself in principle in that it will promote good men and weed out the idle The new regulation is only in force from April 1910, and I am, constrained to believe that it requires trial for a few years

more in order to enable the authorities to ascertain how far the revised scheme has been popular and how much there is yet left to be done. Meanwhile we should strain there is yet left to be done. Meanwhile we should strain every nerve to make proper use of the privileges prescribed under the new regulation, and show to the world that we are capable of doing good work if only opportunt ites are given. We should further show by deeds that we are morally and intellectually improved. This will undoubtedly disillusionize those who are ready to stand in the way of our general improvement in service and society, and I think you will perhaps agree with me when I take the indulgence to say that the benign Government will never be slow in recognising our services in a befitting manner. be slow in recognising our services in a befitting manner, and rewarding us by entertaining another scheme that may lead us to the ultimatum which even the most anxious mind cannot conceive

I am not inclined to point out the fallacies, if any, of the existing rule regulating our pay and prospects happily inaugurated in 1910. But I think I should not commit a wrong, if the following suggestion is put forth on behalf of my fellow Sub Asst Surgeons, which I consider may prove popular in all respects

The Time scale now provided under new regulation for the Civil Assistant Surgeons may conveniently be in troduced in cases of the Sub Asst Surgeons too This may be keenly appreciated by them

The following proposed scale may take the place of the existing scale

A		B	
Listing Scale		Proposed Scale	
	$\mathbf{R}\mathbf{s}$		Rs
Senior grade (1st class)	100	Sentor grado (1st class)	100
Do (2nd class)	80	Do (2nd class)	80
I—Grade (over 15 years' service) "fter passing professional examination  II—Grade (from 11 to 15 years' service) after passing professional examination  III—Grade (from 6 to 10 years' service) after passing professional examination  IV—Grade (from I to 5 years' service)	65	I—Grade (over 14	65 55 40

If the proposed scheme is after all approved and sanc tioned, it can be expected that the heart burning and discontent which are still apparent amongst the Sub Asst Surgeons may no longer exist

You have, Sir, always fought for the night causes of the Sub Asst Surgeons, and it is not beyond their expectation that you will kindly lend your support to my humble that you will kindly lend your support to my humble proposal, if you consider that it is reasonable. A man who has really studied the career of a Sub Asst Surgeon as a whole, will at once admit that they are entitled to further consideration at the hands of the Gracious Government. I do not mean by this that anything should be done at once but gradually after adequate trial. Here I should note that the professional examination is not in every case a "Criterion" as to indicate the proportionate in are placed in places where the very nature of their duty retards the progress of their professional knowledge for want of culture, and therefore the principle underlying the professional examination is hardly carried into action as a result at least some amongst is who are zealous and sufficient by up to date are permitted to rot in the date unnoticed. ly up to date are permitted to 1 ot in the date unnoticed

This experience leads me to the conclusion that one of the three grade examinations may safely be abolished without interfering with the efficiency of the service if the above scheme is sanctioned

I shall be much obliged if you will kindly publish my letter in the next issue of your I M G

I beg to remain,

Sır.

Your most obedient servant,

SATKARI GANGULI,

Relieving Sub Assl. Surgeon,

E B S Ry

# THERAPEUTIC NOTICES

Messes Bailliere, Tindall & Cox announce a translation from the German, of Professor Schmeiden's well known Course of Operative Surgery It is translated and edited by Arthur Turnbull, Demonstrator of Anatomy at the University of Glasgow The author has refrained from crowding his volume with details that can only be mastered in the operating theatre he has disregarded alternative methods, and in summing up the essentials has produced a work which should appeal to British practitioners as a scientific survey of modern operative surgery. It contains many beautiful illustrations both coloured and plain

#### IZAL

A WELL DESERVED honour has been conferred on Messrs Newton, Chambers and Co, Limited, of Thorncliffe, near Sheffield, by the issue of a loyal walrant appointing them manufacturers of disinfectants to His Majesty the King The business was founded in the days of George III, by ancestors of the present principal proprietors. For nearly 120 years it has progressed from strength to strength until to day it employs upwards of 6,000 workers in its coal mines, in its non foundries, and in the manufacture of Izal Newton, Chambers and Co, hist turned their attention to the making of disinfectants in the days when carbolic acid was still regarded as satisfying the utmost requirements of sanitarians. It is constantly said of British manufacturers, that unlike their German competitors, they have been slow to adopt scientific methods. That reproach certainly does not apply to the makers of Izal, who for many years past have conducted patient research work chemical, physical and biological, in their laboratories at Thorncliffe. In addition to their permanent staff they have also sought the advice of the ablest consulting chemists and bacteriologists in perfecting their products.

#### EXTERMINATION OF BUGS, FLEAS, ETC

Messrs R Sunner & Co (50a Lord Street, Liverpool) have put on the market a Solution D, which is to be sprayed on woodwork, cievices, etc., to kill all manner of insect pests. It is claimed to be a powerful and lasting disinfectant and perfectly haimless to materials. Solution D costs 16s per dium of 5 gallons and the special sprays 20s. We think this solution should prove most useful

THE name of LEITZ on any optical instrument is a guarantee of good work, and we have examined with much interest the admirable descriptive catalogues published by the firm of E Leitz, 18, Bloomsbury Square, London, W C We also commend to our readers' notice the pamphlet on the Hayem Sahli Hamacytometer Leitz

Messrs C F Casella also send us beautifully got up catalogues of the meteorological and surveying instruments, which are very complete and useful

Wr may direct the attention of medical men going on leave to the admirable course of study of Pulmonary Tuberculous given at the Royal Hospital for diseases of the chest A Time Table of the lectures and demonstrations may be had on application to the Dean of the Hospital (City Road, London, EC)

The Action Gesellschaft fur Anilin Fabrikation, Beilin, send us specimens of the elegant new productions, e.g., Borovertin, a non irritating innary, antiseptic Cusylal, a non irritant preparation of copper for use in trachoma and gonorrhea, etc. Acidol Pepsin, a powerful digestive, and "Lecithin Agea," an invigorator and nerve tonic The Bombay agency is at 7, Marine Street

# Sorvice Motes

### SERVICE NOTES

THE Government of India has sanctioned the introduction of 'Organisation, Administration and Equipment' as a subject in the examination of Lieutenants of the Indian Medical Service for promotion to the lank of Captain

This sanction will have effect from the 1st January 1914, to embrace all Lieutenants whose commissions are dated 28th January 1911, and those of any earlier batch who have not by that date completed their departmental examination for promotion

The Government of India have also decided that Lieute nants of the Indian Medical Service may be allowed to appear for their promotion examination on completion of one

year's service

Deputy Surgfon General Alfaander Morrison Dallas, Bengal Medical Service, retried, died at Ealing on 9th November 1912. He was born on 5th July 1830, educated at Guys Hospital, took the M.R. C.S. in 1855, and entered the I.M.S. as Assistant Surgeon on 20th February 1868, he became surgeon on 20th February 1868, Surgeon-Major on 8th July 1873, Brigade Surgeon on 1st December 1882, and D.S.G. on 9th September 1884, retiring with one of the extra compensation pensions, on 2nd April 1889. The rules for retiring pensions to officers of administrative rank were then much less liberal than they now are. In order to earn the extra pension for service in the administrative rink, an officer had to put in the full five years for which he was appointed, with a miximum of four months leave on private affairs, or six months on sick certificate. Dr. Dallas was five months short of the full five years' service when he had to retire, owing to ill health. On the other hand administrative officers who were unable, for reasons of health, to complete their five years service, were then eligible for the extra pensions and one of these pensions he got. He received the C.I.E. on 29th May 1886, but, though he was serving in India at the time of the Mutiny, the Army List credits him with no war service. Nearly the whole of his career was spent in civil employment in the Punjab. He joined the jail department in 1859, became Inspector General in 1863, and held that post for over twenty years, until upon promotion he became Singeon General of that Province. In the following year, 1885, the title and local rank of Surgeon General was withdrawn from the Civil Medical Administrative officers the title of Inspector General of Civil Hospitals being substituted for it

Lieutenant-Colonel Carrapiet John Sarkies, of the Bombry Medical Service, retired on 6th December 1912 He was boin on 5th January 1859, educated at Calcutta and at Aberdeen University, took the degrees of MB, CM at Aberdeen in 1882, and entered the IMS as Surgeon on 29th September 1883, becoming Surgeon-Major on 29th September 1895, and Lieutenant Colonel on 29th September 1903 His whole service had been spent in military employ ment He served in Burma in 1887 88, receiving the medal with clasp, in Tirah in 1897 98, medal with two clasps, and in East Africa, in 1903, in the operations in Somaliland, gaining a third medal with clasp

BRIGADE SURGEON LIEUTFNANT COLONEL PATRICK RICHARD MARTIN, Madras Medical Service, retired, died on 24th June 1912 He took the M D and M CH at the Queen's University of Ireland, and entered the I M S as Assistant Surgeon on 1st April 1868, becoming Surgeon on 1st July 1873, Surgeon Major on 1st April 1880 Brigade Surgeon Lieutenant Colonel on 7th May 1891, and retiring on 16th May 1895 He served in Burma in 1887 88, and received the medal with two clasps

CAPTAIN RODERICK DEAR MACGREGOR, of the Indian Medical Service, retired on account of ill-health on 28th October 1912. He was born on 7th October 1876, the son of the late Surgeon Major John Macgregor, of the Bengal Service, who died on 22nd June 1881, and the grandson of the late Heischell Dear, of Monghyr After studying at London Hospital and at Oxford, where he took the MA, MB and BCH in 1904, he entered the IMS as Lieutenant on 1st September 1904, becoming Captain on 1st September 1907. The Army List assigns him no was service. His last appointment in India was in civil employment in Burma

LIEUTENANT-COLONEL ANDREW DUNCAN, Bengal Medical Service, retired, died in a nursing home in London on 18th October 1912 He was born on 10th April 1850, educated at King's College London, Vienna, and Strasburg, took the LS A. and M R C S in 1872, the M B, London, 1874, gaining in 1876, and the F R C S, England, in 1877, and entered Surgeon-Major on 30th March 1890, and Surgeon Lieutenant-Colonel on 30th March 1898, retiring on 1st February 1900,

most of his service was spent in military employment. He served in Afghanistan in 1878-80, was present at the action of Matun, and battle of Charasia, where he was severely wounded, he was mentioned in despatches, and received the wounded, i.e was mentioned in despatches, and received the Afghan medal with a clasp Subsequently he served on the North West Frontier in the Hizria campaign of 1891, receiving the frontier medal with a clasp. At Charasia he was shot through the body, and was absent on sick leave for three years and a half, and, though he put in twenty years service after receiving this wound, his physique was perma nently affected, and he was never the same man again After his retriement he became MROP, London, in 1900 and FROP in 1907, in 1899 he was appointed physician to the Seamen's Hospital at the Royal Victoria and Albert Dock, and subsequently Lecturer on Tropical Diseases at West minster Hospital Medical School Lieutenant Colonel Duncan was the author of several works, of which the most important is The Prevention of Disease in Tropical and Sub important is The Prevention of Disease in Tropical and Sub-tropical Campaigns, London, J & A. Churchill, 1888 This work won the Parker Memorial Prize in 1886 He also wrote work won the Parker Memorial Prive in 1886 He also wrote the articles on Dysentery and Kala Azar in the third edition of Quaine's Medical Dictionary, J and A Churchill, London, 1902 Along with J W Cui, T Pickering Pick, and Alban H G Doran, he compiled The Practitioner's Guide, Long mans, 1902 He also contributed the article on Multary Surgery, to Treves' System of Surgery, and published A Guide to Sick Nursing in the Tropics, London, 1908 In his early service in 1884, he read a paper at a meeting of the N W P and Oudh Branch of the British Medical Association, which made a good deal of stir at the time, and practically crused the winding up of that Branch This paper was entitled The Insantary Tendencies of State Sanitation It was reprinted as a pamphlet in Calcutta in 1885 The wording was insub ordinate, but the views upheld in this paper, though opposed to the theories of the origin of cholera then in official favour, have been proved by time to be correct He also wrote have been proved by time to be correct

LIEUTENANT COLONFL MATTHEW LORENZ BARTHOLO MEUSZ, Bombay Medical Scivice, died on 8th August 1912 He was boin on 15th September 1846, educated at Edinburgh, where he took the degrees of MB, CM, in 1869, and entered the I MS, as Surgeon on 30th September 1873, becoming Surgeon Major on 30th September 1885, and Surgeon Lieutenant Colonel on 30th September 1893, Brigade Surgeon Lieutenant Colonel on 22nd June 1897 He received the Kaisai i Hind Medal, second class, on 1st January 1901, and retired on 31st March 1901 The Army List assigns him no war service.

SURGEON MAJOR JOSEPH CHRISTIAN CORBYN, Bengal Medical Service, retired, died at Cheltenham on 24th October 1912 He entered the I MS Assistant Surgeon on 24th November 1851, became Surgeon on 8th April 1864, and Surgeon Major on 24th November 1871, retiring on 1st January 1879, with the honorary rank of Deputy Surgeon General During the Indian Mutiny he served throughout the siege of Delhi, and was present at the capture of the city, and with the 3rd Sikh Cavalry at the final capture of Lucknow After the fall of that city he was present at the relief of Azamgaih, in the pursuit of Koer Singh, and the clearance of the Jagdespur jungles, and the quelling of the disturbances in the district of Shahabad and Gaya For his services he received the Mutiny medal, with clasps for Delhi and Lucknow Delhi and Lucknow

LIEUTFNANT COLONFL B B GRAYFOOT, the Bombay Medical Service, is promoted to Colonel, vice Corkery, retired, from 25th August 1912 Colonel Grayfoot entered the I MS on 30th September 1886, so, with his promotion, the Bombay Service again goes well ahead of the other two in the matter of early promotion to the administrative grade, though Madras still remains an easy first as regards reaching the selected list Some of Colonel Grayfoots contemporaries in Bengal have not yet reached the selected list. It is undoubtedly, however, for the good of the Service, in every way, that men should attain to administrative rank at an earlier age than has been the case for many years past an earlier age than has been the case for many years past

LIEUTENANT COLONEL FREDERICK ARTHUR ROGERS, Bengal Medical Service, retired, died on 2nd November 1912 He was born on 6th September 1861, educated at St Mary's hospital, took the diplomas M R C S and L R C P, London, in 1883, also the D P H., Cambridge, in 1897, and entered the 1 M S, as Surgeon on 1st April 1885, becoming Surgeon Major on 1st April 1897, and Lieutenant Colonel on 1st April 1905 He retired on 16th December 1905, soon after completing twenty years service He served in Burma in 1885-87 and in 1889, was mentioned in despatches in

G G Os No 434 of 1887 and No 782 of 1889, receiving the medal with two clasps and the North East Fiontier of India, in the Chin Lushii expedition of 1889 90 when he was mentioned again in despitches, G G O No 677 of 1890, receiving a clasp and the D S O His last thirteen years service was spent in civil employ in Bengal, more than half of it, from 1898 to 19 5, as Civil Surgeon of Monghyr

HIS Excellency the Governor of Bombay in Council is pleased to make the following promotions, vice Lieutenant-Colonel B B Grayfoot, MD (Dur), IMS, transferred perminently to the Government of India, with effect from the 8th September 1912—

Major A, Hooton, IMS, to be a Civil Surgeon of the First Class

Major V B Bennett, MB, BS (LON), FRCS, IMS, to act as a Civil Surgeon of the Frist Class during the absence on leave of Lieutenant-Colonel J B Smith, MB, MCh, (RUI), DPH, IMS, or pending further orders Major H Bennett, MB, CM BSC (Edin) FRCS (E), IMS, to continue to act as a Civil Surgeon of the Frist Class during the absence on leave of Lieutenant Colonel C T Hudson, IMS, or pending further orders

MAJOR L P STFPHEN, MB, Bch (Abdn), DPH, (Lon), rRCs (Edin), IMS, 19 granted, with effect from the 17th August 1912, such privilege leave of absence as may be due to him on that date, in combination with furlough on medical certificate for such period as may bring the combined reproduct of absence up to core year and thereon days. period of absence up to one year and thirteen days

MAJOR CORRIE HUPSON, DSO, IMS, Capt J W Illius, IMS, and Major W E Scott Moncileff, IMS, have been admitted Fellows of Royal College of Surgeons, Edin burgh

ON return from lewe Major E J Morgan, IMS, was posted to Sitapur, and Capt H C Buckley, IMS, who has been officiating at Sitapur has been transferred to Basti,

MILITARY Assistant Surgeon P B Mills, 13 MD, in civil medical charge of Chakrata, is appointed to officiate as civil surgeon of Jalaun

THE services of Captain W T Finlayson, IMS, Superintendent of the Borstal Central Jail at Lahore, are placed permanently at the disposal of the Government of the Punjab with effect from the 20th June 1911, for employment in the Jail Department

CAPTAIN D MUNRO, IMS, is appointed (Sub protemp)
First Resident Surgeon, Presidency General Hospital, from 231 d November 1912

MAJOR E C MACLEOD IMS, was on study leave from 6th May to 31d August 1912

LIEUTENANT COLONBL K PRASAD, IMS, has been granted by His Majesty's Secretary of State for India an extension of leave on medical certificate for six months

UNDER the provisions of Articles 260, 316 and 233 of the Civil Service Regulations, privilege leave to the extent due, combined with special leave on ungent private affairs so as to make up a total power of the months. make up a total period of six months, is granted to Lieutenant-Colonel R H Castoi, I Ms, Civil Surgeon, Myingyan, with effect from the 25th November 1912, or the subsequent date on which he may avail himself of the privilege leave

CAPTAIN A D WHITF, IMS, Second Resident Surgeon, Presidency General Hospital, is allowed privilege leave for three months with effect from November 29th, 1912

Major W V Coppinger, IMS, on being relieved of his duties as Officiating Professor of Ophthalmic Surgery, Medical College, Calcutta, and Ophthalmic Surgeon to the College Hespital, is appointed to act as second Resident

Surgeon, Presidency General Hospital, during the absence, on leave, of Captain A D White, I M S

THE resignation of Lieutenant-Colonel K. H. Mistri, I. M. S. (retired), of the post of Honorary Presidency Magistrate, Bombay, to which he was appointed by Government Notification No 7648, dated the 29rd October 1912 has been accepted by His Excellency the Governor of Bombay in Council

THE Commander in Chief in India is pleased to make the

following appointments —
Captain F F S Smith, 1 us, to be specialist in Ophthalmology 8th (Lucknow) Division, with effect from 24th October 1912

COLONEL R B ROE IMS, to be Assistant Director of Medical Services, Suhind and Jullundur Brigades, with effect from the 30th October 1912, vice Colonel R W S. Lyons, I M S, transferred

THE Director General has recently issued the following

"As delays are experienced in the receipt of Annual Confidential Reports on officers who are out of India on leave Confidential Reports on others who are out of India on leave the Director General invite the attention of all officers of the Indian Medical Service to this office Circular No 6 C, dated the 27th February 1893, and requests that, when pro-ceeding on furlough or leave which is likely to extend beyond the expiration of the verr, they will be good enough to fill in the front page of the form of Annual Confidential Report, and submit the same, before departure to their adminis

and submit the same, before departure to their administrative heads

2 The extent of furlough, etc., and date of departure should invariably be given by the Medical Officer concerned, after question 3 has been answered

3 These reports should be completed by Administrative Medical Officers at the end of the year, and forwarded to this office through the prescribed channel not later than the 1st February

LIEUTENANT COLONEL A W DAWSON, I M S, 18 appoint ed to hold civil medical charge of Roorkee, in addition to his military duties, vies Majoi W G Beyts, R A M C

LIEUTENANT COLONEL R J MARKS, I MS Civil Surgeon, on leturn from leave, is posted to Gorakhpul as Civil

LIEUTENANT COLONEL H B MELVILLE, I M S, Civil Suigeon, on return from leave, is placed on special plague

THE Notification No 3668—II 295, dated the 30th July 1912, replacing the services of Lieutenant-Colonel I C White, I MS, Sanitary Commissioner, United Provinces, on leave at the disposal of the Government of India, Department of Education, as books as possible. Education, is hereby cancelled

MAJOR J N WALKER IMS, Civil Surgeon, is transferred from Gorakhpur to Rae Bareli

CAPTAIN H W ILLIUS, IMS, Officiating Civil Surgeon, is transferred from Rae Bareli to Budaun

MILITARY ASSISTANT-SURGEON F W HOLMES, Civil Surgeon, is transferred from Budaun to Fatehpur

CIVIL ASSISTANT SURGEON SAGAP PRASD NEOGI, attach ed to the sadr dispensary, Fatchgarh, to hold civil medical charge of that district in addition to his own duties, vice Captain S C Pal, I M S, who relinquished charge of his civil medical duties on the afternoon of the 11th November 1912

CAPTAIN N W MACEWORTH, IMS, CAPTAIN N W MACKWORTH, IMS, Officiating Civil Surgeon of Purnea is allowed combined leave for fifteen months, viz, privilege leave for three months, study leave for six months and furlough for six months, under Articles 260, 308 (b) and 233 of the Civil Service Regulations and Rule 2 of the study leave rules with effect from the 15th November 1912 or any subsequent date on which he may be relieved of his duties

MAJOR J C H LFICESTER, FR.CS, IMS, Civil Surgeon of the second class, is appointed to act as Civil Surgeon of Purnea, until further orders, with effect from the 15th November 1912 or any subsequent date on which he relieves Captain N W Mackworth, IMS

DR J N RAI, LRCS, LRCP, DPh, is appointed on probation for two years as Deputy Sanitary Commissioner of Bihar and Orissa, with effect from the 21st October 1912

CAPT C E SOUTHON, IMS, was appointed Plague Medical Officer at Guidaspur, from 27th September

MAJOR J A BLACK, IMS, on return from leave on 3rd October resumed his duties as Chemical Examiner

MAJOR H ANSWORTH, IMS, on return from furlough resumed his duties as Professor of Ophthalmic Surgery, relieving Lieutenant Colonel E V Hugo, FRCS, IMS., of the additional charge

WITH reference to Government of India Notification No 734, dated the 6th September 1912, Captain R'H Bott, MB, FRCS, IMS, assumed charge of his duties as Professor of Anatomy, Medical College, Lahore, with effect from the forence of the 1st October 1912, relieving Captain H H Broome, MB, IMS, who proceeded on the leave granted to him by the Government of India Notification No 534, dated by the Table 2019, with effect from the careed of the control of t

dated 11th June 1912, with effect from the same date
Captum Bott also held charge of the office of Professor of
Midwifery in addition to his own duties till Major R
Heard, I M S, returned from leave

Bombay

ON return from the leave granted by the Government of India Notification No 796, dated 11th July 1911, Lieutenant-Colonel H G Melville, I M S, resumed charge of the office of Professor of Materia Medica, Medical College, Lahore, on the afternoon of the 30th September 1912, relieving Lieute nant Colonel G McI C Smith, who proceeded on leave with effect from the same date. effect from the same date

LIEUTENANT C A WOOD, IMS, has been appointed to act as Civil Surgeon, Jacobabad, from the 15th August 1912, in addition to his own duties

HIS EXCELLENCY the Governor in Council is pleased to make the following appointments pending further orders

Major S C Evans, MB OM (Edin), IMS, on return to duty, to be Professor of Midwifery, Grant Medical College, and in charge Bar Mothbar and Sir D M Petit Hospitals

Major A W Tuke, FRCSI, DPH (Ire) IMS, on relief by Major Evans, to act as Civil Surgeon, Nasik
Captain H S Hutchison, M,B, BSc (Glas), IMS, on relief by Major Tuke, to resume his appointment as Personal Assistant to the Surgeon General with the Government of Bombay

LALA SRI RAM, Senior Assistant Surgeon, made over charge of the duties of Superintendent of the Ambala District Jail to Lieutenant-Colonel D T Lane, IMS, on the afternoon of the 4th November 1912

MILITARY ASSISTANT SURGEON H V W Cox, made over charge of the duties of Superintendent of the Multan District Jail to Major M Corry, I VS, on the forenoon of the 5th November 1912

LALA UMRAO RAJA LAL, Civil Surgeon, made over charge of the duties of the Superintendent of the Sialkot District Jail to Major P St C. More, I M S, on the forenoon of the 5th November 1912,

PRIVITEGE leave for one mouth, under Article 260 of the Civil Service Regulations, is granted to Military Assistant Surgeon A D C Perdriau, Civil Surgeon, Nirsinghpur, with effect from the 16th December 1912, or the subsequent date on which he may avail himself of it

CAPTAIN F P WERNICKE MB, CHB, IMS, Officiating Civil Surgeon, Hoshaugabad is placed in visiting medical charge of the Narsinghpur District

THE services of Captain W J Powell, IMS, Officiating Superintendent, Central Jail, Jubbulpoie, are replaced at the disposal of the Government of India, Home Department, with effect from the date on which he is relieved of his duties

MAJOR PADMAKAR KRISHNA CHITALE, LRC,P, LRCS, LFPS, IMS, Civil Surgeon 2nd Class is appointed to officiate as Civil Surgeon, 1st Class, with effect from the 26th September 1912, and until the return from furlough of Major W. H. Konnell, LRC, M. R. C. D. T. M. L. N. S. McG. Lieute. W H Kennick LR.CP, MRCS, DTM, IMS, mce Lieute nant Colonel W D Sutherland, MD, CM, Civil Surgeon. 1st Class, on deputation

CAPTAIN H C KFATES, I WS, made over charge of the duties of the Superintendent of the Dera Ghazi Khan District Jail to Captain R T Wells, I MS, on the forenoon of the 12th November 1912

MAJOR E O THURSTON, IMS, Civil Surgeon, Burdwan was allowed privilege leave for twelve days viz, from the 31d to the 14th October 1912, under Article 260 of the Civil Service Regulations, in extension of the leave granted to him in Noti fication No 988T -Medl, dated the 19th September 1912

THE Lieutenant Governor of Burma is pleased to appoint Colonel A O Evans, IMS, Officiating Inspector General of Civil Hospitals, Burma, to be a member of the Educational Syndicate in place of Colonel H St C Carruthers, IMS, who has resigned

CAPT A McD DICK, IMS, 19 appointed specialist in advanced Operative Surgery, Burma Division, from 21st Octo ber 1912

BRIGADE SURGEON EDWARD ALFRED BIRCH, Bengal Medical Service, retried, died in London on 27th November 1912. He was born on 24th September 1840, educated at the City of Dublin Hospital and in the School of the Royal College of Surgeons, Ireland, and took the LRCS I in 1861. Subsequently he took many other diplomas, the LKQCP in 1865, the FRCS I in 1866, the SSC Cambridge in 1878, the MD Brussels in 1879, the MRCP London in 1886, and was elected FRCP London in 1882. Entering the National Assistant Surgeon in M R C P London in 1886, and was elected F R C P London in 1892. Entering the Navy as Assistant Surgeon in 1861, he served in the China Wai, and was piesent at the actions of Kagosima and Simonosaki, in Japan. He resigned his commission in 1865 and entered the I M S as Asst-Surgeon on 31st March 1866, becoming Surgeon on 1st July 1873, Surgeon Major on 31st March 1878, and Bigade Surgeon on 31st April 1891, returing on 4th October 1893. He saw no war service in India, but spent most of his cured in civil employment in Bengal, where he served in the Bihai famine of 1874, then for some years as Civil Surgeon of Hazaribagh, and from 1882 to 1889, when he went on furlough, as Superintendent of the Presidency General Hospital in Calcutta. After his return from leave, he was posted as Principal of the Calcutta Medical College, and remained there till he return there till he retued

Birch's name will, however, probably be best remembered as that of the author of a book in every day use in India, by most medical officers and by most parents, The Manage ment and Treatment of Children in India. This may be called an instance of the nony of fate, for Birch was not the original author of the book. This book is probably the oldest professional work still in general use. It was written, in the first place, by Surgeon Henry Hurry Goodeve, of the Bengal Medical Service, and published on 15th March 1844, a very small volume, privately printed entitled Hints for the General Management of Children in India, in the absence of mofessional advice. A second edition was issued less than six months later on 1st September 1844, a third in October 1852, and a fourth in 1856. Even this fourth edition is only a very small octavo volume of 135 pages. The fifth edition was edited by S. C. G. Chuckerbutty, the sixth, by Joseph Ewart came out in 1872. The seventh edition was the first edited by Birch, in 1879, and the original work was completely rewritten. A second edition was published in 1886, a third in 1895. By this time the book had swelled to a large octavo of 476 pages, and little, if any, of Goodeve's as that of the author of a book in every day use in India, to a large octavo of 476 pages, and little, if any, of Goodeve's

original work was left. A fourth edition followed in 1902, and a fifth edition of Birch's work or eleventh edition of Goodeve's, is now under preparation by Lieutenant Colonel C R M Green, I M 8

THE following postings and transfers are ordered, dated the 10th December 1912, in the Civil Medical Department, Bui ma

Lientenant-Colonel F J Dowes, IMS, on return from leave, to be Civil Surgeon, Myingyan, in place of Major F V O Beit IMS transferred Major F V O Beit IMS, to be Civil Surgeon, Merktila, in place of Captain E B Munio, IMS

THE following postings and transfers are ordered in the Civil Medical Department, Burma

Major I. E Gilbert, MD, BS (Lond), DPH (Cantab), IMS, whose services have been replaced by the Government of Madias at the disposal of this Government, to be Civil Surgeon, Akyab, in place of Lieutemant Colonel T W Stewart, M B , I M B , proceeding on leave

Stewart, M.B., I.M.B., proceeding on leave
On relief by Major T. Stodart, M.B., C.M., I.M.S., Captain
E. T. Harris, M.B., I.M.S. Civil Surgeon Mogok, to be Civil
Surgeon, Toungoo in place of Senior Military Assistant
Surgeon and Honorary Captain J. F. Curran, transferred
Under the provisions of articles 260, 308 (b) and 233 of the
Civil Service Regulations privilege leave for three months
combined with furlough for one year and nine months is
granted to Lieutenant Colonel T. W. Stewart, I.M.S., Civil
Surgeon Akyab, with effect from the date on which he may
avail himself of the privilege leave

# Motice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if requested

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### BOOKS, REPORTS, &c, RECEIVED -

Diculator s Text book of Medicine (2 Vols) 218 Baillière, Tindall Vincent's Nutrition of the Infant, 4th Ed 10s 6d Baillière, Tindall

Hawthorne's Studies in Clinical Medicine, 6s Bale Sons & Danielsson,

Record of Indian Museum Vol VIII, Part I Record of Indian Museum Vol VIII, Part I

11 Harston's Care of European Children in the Tropics Bailhere,
Tindall & Cox 7s 6d net.

N N Bosu's Asphysia Neonatorum, Dacca. 1°as
The King Institute Report
Report of Mada's Civil Hospitals
The Crincids of the Indian Ocean Indian Museum Reports
Oslor's Medicino, 8th Ed Butterworth & Co (India), Ld Price
Rs 15-120)
The Growth of Groups in Animal Kingdom Capt R E Lloyd, 1 m's
1 onerman & Co (5s)

The Growth of Groups in Animal Kingdom Capt R E Lloyd, I I longman & Co (5)

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Paycho-analysis—E Jones Bailliere, Tindall & Cov (10s 6d net)

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No 55 Hematopota Pluvialis Cragg

No 56 Malaria in Andamans Christopher

C E Housdon s Water Supply & Drainage Longmans & Co

R O Moor s Disease of the Heart Longmans (3s 6d)

## LETTERS, COMMUNICATIONS, &c, RECEIVED PROM ---

Lt Colonel D G Crawford, I M 8, London Sir Ron dd Ross, c B Live, pool Capt Hornett, I M 8, Galunti Capt Hornett, I M 8, Calcutta Capt Lewell I V 8, Calcutta Capt L B Scott, I V 8, Sylhot Capt Ross, I M Rauchi Capt Strother Smith, I M 8, Allahabad Capt Burk ley Hill, I M 8, Madras Capt Rutherfood, I M 8, Bulaspun Major Greig, I M 8 Calcutta Lt Col B 8 ton, I M 8, Simla Dr Palipuka, Puri Capt P Mackio, I M 8
Major Woolley I M 8, Port Blair Capt Barker, I M 8, Lahore Dr, H Sen Khulna

# Birginal Articles

# THE DIFFERENTIAL BLOOD COUNT IN DENGUE

BY W L HARNETT, MB, FRCS,

CAPT, IMS,

Ewil Surgeon, Kamrup, Assam

THE epidemic of dengue which prevailed in Calcutta during the past hot weather followed the course usually attributed to this disease of appearing first in coast towns and travelling inland by way of the valleys of the great rivers. I do not know when the first cases were recognised in Calcutta, but the disease appeared in Gauhati, Assam, about the fourth week in May, when 1 saw a typical case with a remarkably well developed tash in a European By the end of the month two other Europeans living in the next bungalow had been attacked and nearly all their servants. I heard soon afterwards that there were numerous cases in the town and that the disease was widely prevalent in the lower valley of the Brahmaputia, and, on enquiring at the Civil Hospital from the medical subordinates who were in charge of the out patient department, I learnt that cases of fever accompanied by headache and lumbar pain were presenting themselves daily At my request a number of convalescent cases were brought before me, were presenting themselves daily then descriptions of then symptoms showed that the diagnosis of dengue was correct, and on examining films of the blood the changes which I shall describe below and which I now regard as characteristic of the con valescent stage of the disease were found in every case During June, July and August I saw numerous cases and was able to confirm my previous observations.

Towards the end of August the cases became less numerous, during September only a few scattered cases occurred and by the end of the month the epidemic had entirely ceased

#### CLINICAL COURSE

I do not propose to say much on the aspect of the subject Major Megaw, IMS, in his paper "Are Seven Day Fever and Three Day Fever forms of Dengue" (Indian Medical Gazette, January 1909) has exhaustively analysed the clinical features of the diseases known by these three titles, and has sum marised with the greatest lucidity the evidence for their identity. He lays special stress on the variability of the disease in regard to every symptom and the cases which I have seen bear out this contention. The duration and the character of the fever are the most variable points of all and in illustration of this I append a series of thirteen charts arranged in order of duration of the fever.

Fever	lasting	2 (	dry s	Charts	I, II, III
	"	3	"	1)	IV-VII
	11	4	1)	"	$\mathbf{viii} \mathbf{x}$
	,1	5	"	"	$_{\rm IIX~IIX}$
	33	ti	11		XIII

Most of these cases it will be noticed fall into the second class in Megan's classification of the fever—"Short fever type" No IV is the "Interrupted fever type" though not a good example. No XI is the "Saddle back type", whilst Nos XII and XIII may be regarded as the "Continued Fever type" in which the secondary rise is merged into the primary fever. The series begins with charts typical of the "Three-Day Fever" of Northein India and ends with charts which correspond fairly closely with the textbook accounts of the fever in dengue.

Herdriche aid prin in the loins were constant and characteristic in all the cases which I saw and joint

pains were often present. All recent writers on this subject agree that the seveie "Break bone" pains of the textbooks are larely complained of Wimberley (Indian Medical Gazette, August 1910) never saw this symptom, in the Biisbane and Philippine epidemics it was lare, Monio (Indian Medical Gazette, September 1911) saw no instance in 109 cases in the 27th Punjabis at Alipore, nor do McCarrison of Wall describe it as characteristic of the Chitial fever. My experience is the same, but that the pain does occasionally assume this form I can vouch for, as I saw two cases in Europeans in which this very term was used by the patients themselves who, when questioned, assured me that they had not only never read any medical book, but had never before heard of dengue. One of these patients in the letter asking me to come and see him wrote—"It began yesterday with a slight pain in my left foot. to-day the whole of my body feels as if there isn't a single whole bone in it." Does not this read like a plagiarism from Manson?

The rash is generally agreed to be a variable feature, it is in my experience much more difficult to detect in Indian patients than in Europeans and Eurasians, the few cases which I saw of the latter races all had well marked rashes appearing about the 5th or 6th day, whereas in Indian cases it was either never detected at all, or was very slight and evanescent. The appearance of the rash was always immediately followed by the

disappearance of the pains

#### THE BLOOD CHANGES

The recorded blood changes in dengue are (1) a marked leucopenia setting in after the 2nd or 3rd day of the fever, (2) a diminution of the polymorphonuclears, (3) a marked relative and some actual increase of the

large and small mononuclears

(I) Leucopenia I find to be invariable during the febrile stage and is usually well marked after the second day. Lack of time prevented me from counting the total number of leucocytes except in a few cases, but in those which were counted I found the number of leucocytes to be 3000 4000 per cmm. From the appearance of the films I judged in the other cases that the numbers present did not differ widely from the above

(2) The reduction in the polymorphonuclears becomes manifest at the same time as the leucopenia and continues to progress as other varieties of leucocytes

increase during the next few days

(3) The large mononuclears (large hyalines) rarely show any wide departure from the normal in most cases are slightly diminished in numbers lymphocytes, both large and small, at first relatively increased from the dimination of the polymorphonuclears, show an absolute increase towards the end of The distinction between large and small lymphocytes in this disease is rather arbitrary, as all sizes are met with from  $6\mu$ — $12\mu$  A common variety met with in this disease is slightly larger than the ordinary small lymphocytes with a round or slightly indented nucleus, placed a little eccentrically, with a clear blue protoplasm (Leishman's stain) containing several coarse basophil granules These cells are often met with in malarial bloods, but are especially common in this disease and are evidently associated with the lymphocytic increase which occurs towards the end of the week The difficulty in classifying them is increased by the fact that owing to the leucopenia, the differential count has to be done at the edges of the film where the cells are always liable to be distorted and hard to recognise

In addition to these well recognised changes there occurs also another, which, as far as I know, has not hitherto been described in dengue, and to which it is the pulpose of this paper to draw attention. This change consists in a variable amount of eosinophilia always present, and, sometimes dominating the whole blood picture, which sets in about the 4th—6th day and is well marked by the 10th day, and persists for some time afterwards. In

Pams severe

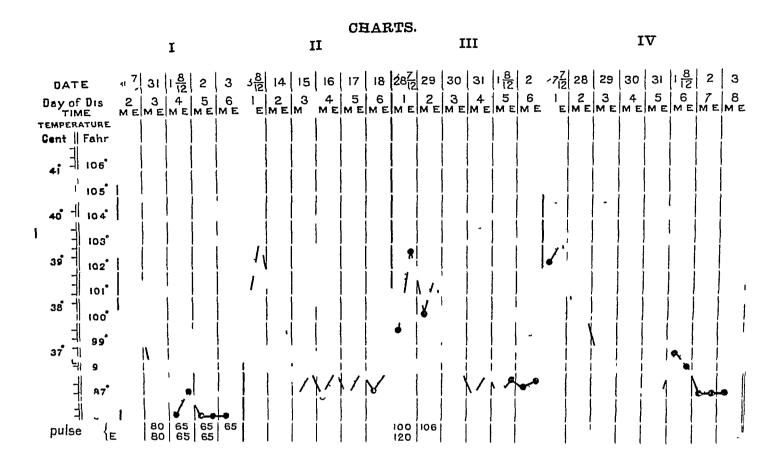
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the following 12 cases the first blood count was done
                                                          No 5 Indian Fever lasted 3 days
 during the febrile stage, and a second and in some cases
                                                        No rash
a third and fourth during the convalescent stage
                                                        1st Count, 4th July, 1912, 2nd day -
   No I Indian Fever lasted 3 days, no rash
 No VII
                                                            Polymorphonuclears
                                                             Large Mononnelears
 1st Count, 31st July, 1912, 2nd day -
                                                            Large Lymphocytes
     Polymorphonuclears
                              61 per cent
                                                            Small Lymphocytes
     Large Mononuclears
                             35 per cent
                                                            Eosmophiles
     Large Lymphocytes
                             16
                                             =335\%
     Small Lymphocytes . 175
                                   "
     Eosmophiles
                                                            Polymorphonuclears
                              2
2nd Count, 9th August, 1912, 11th Jay -
                                                            Large Mononuclears
                                                            Large Lymphocytes
     Polymoi phonuclears
                            37 5 per cent
                                                            Small Lymphocytes
     Large Mononuclears
                               2
                                                            Eosmophiles Kes
    Large Lymphocytes - ...
                              17
                                             =355\%
     Small Lymphocytes
                            185
                                                          Leucopenia in both films
    Eosmophiles
                             25
   Leucopenia marked in both films
  No 2 Indian Fever lasted 2 days
                                            No
                                               าลรโก
Chart I
1st Count, 30th July, 1912, 2nd day —
                                                            Polymorphonuclears
    Polymorphonuclears ... 58 per cent
                                                            Large Mononuclears
    Large Mononucleurs
                                                            Large Lymphocytes
                                    93
    Large Lymphocytes .. 135
                                                            Small Lymphocy tes
                                   ,,
                                             =30\%
    Small Lymphocytes
                        ... 165
                                                            Eosmophiles
    Eosmophiles
2nd Count, 3rd August, 1912, 6th day --
                                                          cytosis
    Polymorphonucleus
                             41 per cent
                                                            Polymorphonuclears
    Large Mononuclears
                              2
                                                            Large Mononuclears
    Large Lymphocytes
                             18
                                                            Large Lymphocy tes
                                   ,,
                                             =38\%
    Small Lymphocytes
                             20
                                                            Small Lymphocy tes
                                  ••
    Eosmophiles
                                                            Eosmophiles
  Leucopenia in both films
  No 3 European Fever lasted 3 days
                                         Severe pain,
well marked typical rash appeared 5th day
                                          Chart VI
1st Count, 24th July, 1912, 2nd day Marked leuco
                                                            Polymorphonuclears
                                                            Large Mononuclears
    Polymorphonuclears
                             77 per cent,
                                                            Large Lymphocytes
    Large Mononuclears
                             35
                                                           Small Lymphocytes
    Large Lymphocytes
                               7
                                   ,,
                                            =13^{\circ}5\%
                                                           Eosmophiles
                             65
    Small Lymphocytes
    Eosmophiles
                               в
2nd Count, 28th July, 1912, 6th day
                                                           Poly morphonuclears
                                       Marked leuco
  penia
                                                           Large Mononuclears
                                                                                    11
                                                           Large Lymphocytes
    Polymoi phonuclears
                             32 5 per cent
                                                           Small Lymphocy tes
                                                                                    19
    Large Mononuclears
                             35
                                   ,,
                                                           Eosinophiles
                                                                                    10
    Large Lymphocytes
                              17
                                            =37\%
                              20
    Small Lymphocytes
                              27
    Eosmophiles
                                                           Polymorphonuclears
3rd Count, 4th August, 1912, 13th day Leucocytes
                                                                                     3
                                                           Large Mononuclears
  nearly normal numbers
                                                           Large Lymphocytes
                                                                                    15
                                                                                    19
    Polymorphonuclears
                             59 per cent
                                                           Small Lymphocytes
    Large Mononuclears
                              2
                                                           Eosinophiles
    Large Lymphocytes
                              8
    Small Lymphocy tes
                                                       leucocytes in any of the films
                             23
    Eosmophiles
                        Fever lasted 4 days Pains
                                                         No 8 Indian
  No 4 Anglo Indian
                                                       typical No 1ash
severe, well marked typical rash appeared 5th day
Chart X
1st Count, 4th August, 1912, 2nd day -
                                                           Polymorphonucleurs
                            79 5 per cent
    Polymorphonuclears
                                                           Large Mononuclears
                             95
    Large Mononuclears ..
                                                           Large Lymphocytes
                             65
                                                                                    10
    Large Lymphocytes
                                                           Small Lymphocy tes
                                           =10%
                             35
    Small Lymphocytes
                                                                                     0
                                                           Eosmophiles
    Eosmophiles
                                                       2nd Count, 30th July, 1912
2nd Count, 10 August. 1912, 8th day ---
                                                                                    55
                                                           Polymorphonuclears
    Polymorphonuclears .. 60 5 per cent
                                                           Large Mononuclears
                                                                                     3
    Large Mononuclears
                                                                                    11
                                                           Large Lymphocytes
                            125
    Large Lymphocytes
                                    "
                                            =20\%
                                                           Small Lymphocy tes
                                                                                    20
                             75
    Small Lymphocytes
                                                                                    11
                                                           Eosmophiles
                            144
    Eosinophiles
                                                         Marked leucopenia in both films
  Leucopenia marked in both films
```

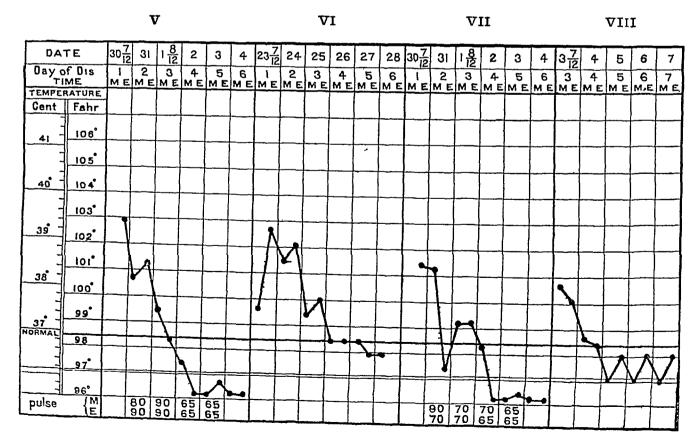
```
78 per cent
                                 65
                                  q
                                              =155\%
                                 65
                                  0
 2ud Count, 21st July, 1912, 19th daý -
                                 68 per cent
                                  5
                                  8
                                             =20\%
                                 12
                                  7
   No 6 Indian Fever lasted 3 days Headache severe,
 but loin pains slight No rash Chart IV
 1st Count, 28th July, 1912, 2nd day Moderate lenco
                                57 5 per cent
                                11
                                15
                                165
 2nd Count, 8th August, 1912, 13th day
                                        Slight leuco
                               754 per cent
                                6
                                9
                                4
   No 7 Indian Fever lasted 2 days
                                        Pains severe,
well marked typical rash appeared 6th day
1st Count, 36th July, 1912, 3rd day -
                               56
                                   per cent
                                2
                                45
                              345
2nd Count, 4th August, 1912, 8th day.-
                              55 5 per cent
                               45
                                             =30%
3rd Count, 16th August, 1912, 20th day -
                              565 per cent
                                            =34\%
                                     "
                               65
 No marked deviation from normal numbers of the
                  Duration of fever uncertain
                                              Pains
1st Count, 22nd July, 1912, 31d day -
                              82 per cent
                               55
                               25
                                            =125\%
                            11th day -
                                  per cent
                                      ,,
                                           } = 31%
                                     "
```

# THE DIFFERENTIAL BLOOD COUNT IN DENGUE

BY CAPP W L HARNETT, IMB, MB, FR.C.S,

Civil Surgeon, Kamiup, Assam





## THE DIFFERENTIAL BLOOD COUNT IN DENGUE

BY CAPT W L HARNETT, IMS, MB, FRCS,

Civil Surgeon, Kamrup, Assam

#### CHARTS

 $\mathbf{x}_{\mathbf{I}}$ 

IIX

X

120 100 100

IX

99° 98 97° 96°

pulse

28<u>5</u> 1 6 3 8 25<u>7</u> DATE 29 30 31 5 6 7 8 26 27 28 29 30 30 Day of Dis 5 2 3 TEMPERATURE Cent Fahr 106 105 40° 104 103° 39 102 101 38 100

XVIII IIVXXVI XIII XIV X۷ 22 7 23 24 25 26 27 28 28 30 Dis 3 5 2 3 4 5 1 2 3 4 I MEMEMEMEMEMEMEME 2 3 4 2 9 4 5 6 1 2 3 4 5 MEMCMEMEMEMEMEMEMEMEMEMEME 2 6 9 7 8 ME MEMEMEMEME ATURE Fahr \_106° 105 104 103° 102 101 <u> 100°</u> 99 98 97 96° 100 70 70

```
No 9 India
                  Fever lasted 4 days
                                          Severe
                                                 pains
           Chart VIII
 No 1ash
 1st Count, 31d July 1912, 31d day
                                          Total No.
   leucocytes 3700 per cmm
     Polymorphonucleans
                                80 5 per cent
     Large Mononuclears
                                 35
     Large Lymphocytes
                                 6
                                       ,,
                                               = 16 \%
     Small Lymphocytes
                                10
     Eosmophiles
                                 0
 2nd Count, 8th July 1912, 8th day
                                         Total No.
   leucocytes approximately the same
     Polymorphonuclears
                                615 per cent
     Large Mononuclears
                                 9
     Large Lymphocytes
                                15
                                               =225 \%
     Small Lymphocytes
                                75
                                      ,,
     Eosmophiles
                                7
   No 10 Indian Duration of fever about 3 days
 Typical pains
               No rash
 1st Count, 3rd day-
     Polymorphonuclears
                                    per cent
                                75
     Large Mononuclears
                                105
     Large Lymphocytes
                                3
                                      17
     Small Lymphocy tes
                                65
                                      31
     Eosmophiles
                                5
2nd Count, 15th day-
     Polymorphonuclears
                               73
                                    per cent
     Large Mononuclears
                                4
                                      "
     Large Lymphocytes
                               13
                                      ,,
     Small Lymphocytes
                                               =18\%
                                5
                                      33
     Eosmophiles
                                5
     Both slides showed leucopenia
  No 11 Indian
                  Mild attack No iash.
1st Count, 4th day-
     Polymor phonuclears
                               42
                                   per cent
     Large Mononuclears
                               12
     Large Lymphocytes
                               29
                                      11
     Small Lymphocytes
                                              =46 %
                               17
                                      "
     Eosmophiles
                                0
                                     11
2nd Count, 13th day-
    Polymorphonuclears
                               545 per cent
    Large Mononuclears
                                25
     Large Lymphocytes
                               17
                                      "
     Small Lymphocytes
                                              =39 %
                               22
                                      "
     Eosmophiles
                                4
  No 12 Chinaman Mild 'attack
                                     No rash. Fever
lasted 2 days
              Chart II
1st Count, 15th August 1912, 31d day
                                          Total leuco
  cytes 4,400 per cmm
     Polymor phonuclears
                               60
                                  per cent
     Large Mononuclears
                                8
     Large Lymphocytes
                               16
     Small Lymphocytes
                                             ⇒ 30 5%
                               145
     Eosmophiles
                                     ,,
                                15
2nd Count, 16th August 1912, 4th day
    Polymorphonuclears
                              59 per cent
    Large Mononuclears
                               45
    Large Lymphocy tes
Small Lymphocy tes
                              185
                                     "
                                             =345\%
                              16
    Eosmophiles
                                     "
                               2
3rd Count, 17th August 1912, 5th day
  mcreasing in numbers
                                           Leucocytes
    Polymor phonuclears
                                63 per cent.
    Large Mononuclears
                              2 75
    Large Lymphocy tes
                               14
    Small Lymphocy tes
                                     "
                             15 75
                                            =2975\%
    Eosmophiles
                                     "
                              45
4th Count 19th August 1912, 7th day
    Polymorphonuclears
                               63 per cent
    Large Mononuclears
   Large Lymphocytes
Small Lymphocytes
                                2
                                     ,,
                                9
                                     11
   Eosmophiles
                               18
                                            =27\%
                                8
                                     "
```

The next series of counts are from out-patients seen at various stages after the subsidence of the fever, with the exception of No 13 which was seen during the febrile stage. Temperature charts were, therefore, unobtainable. Only one count could be done, as the patients were either lost sight of, or else the count was done so late in [convalescence that a second count did not appear likely to be of much interest. It will be noticed that, like the convalescent counts in the first series, every count (except the one done during the acute stage) shows an abnormal percentage of eosino-philes.

### No 13 Indian 2nd day-

Polymoi phonuclears	91 pe	ı cent
Large Mononuclears	, 3	,,
Large Lymphocytes	4	"
Small Lymphocytes	0 5	"
Losinophiles	. 15	"
Marked leucopenia	An unusual count.	"

#### No 14 Indian 5th day

Polymoi phonuclears	65 5	per cent
Large Mononuclears	. 3	• ,,
Large Lymphocytes	11	"
Small Lymphocytes	12	"
Eosinophiles	. 85	"

No 15 Indian Fever lasted 2 days Typical rash appeared on 4th day

Count 5th day-	5
Poly morphonuclears	. 705-per cent
Large Mononuclears	35 ,,
Large Lymphocytes	5 ,,
Small Lymphocytes	8 ,,
Eosmophiles	13 ",

# No 16 Indian Duration of fever uncertain Count 6th day—

Polymorphonuclears	15 per cent
Large Mononuclears	0 ,
Large Lymphocytes	· · 1 "
Small Lymphocytes	. 5 ,,
Eosmophiles	••• 79

It is most regrettable that this patient was lost sight of The count is a most unusual one and there may have been some other factor concerned in the production of this enormous eosinophilia

No 17 Indian Fever lasted 4 days Pain severe No rash

Count 6th day Marked leuce	openia
Polymoi phonuclears	• 53 per cent
Large Mononuclears	. 5
Large Lymphocytes Small Lymphocytes	, 3
Small Lymphocytes	. 21 "
Eosmophiles	18 "

No 18 Indian. Fever lasted 3 days Pain severe and still persisting on 7th day. No rash

### Count 7th day

Polymorphonuclears Large Mononuclears Large Lymphocytes Small Lymphocytes Eosinphiles	54 per cent 15 " 25 " 125 "
Small Lymphocytes	125 "

No 19 European Fever lasted 7 days Pain not very severe Transitory rash on 6th day Diarrhæa

Count 8th day Leucocytes approximately norma

Polymorphonuclears Large Mononuclears Large Lymphocytes Small Lymphocytes Eosinophiles	. 74 25 per cent. . 1 25 ,, 4 ,, 13 75 ,,

No. 20 Indian Mild attack	No 1ash
Count 9th day	
Polymorphonuclears	55 per cent
Large Mononuclears	75 ,,
Large Lymphocytes	13 5 ,,
Small Lymphocytes	Q
Eosmophiles	15
2nd Count 21st day	31
Polymoi phonucleais	68 per cent
Large Mononuclears	8 .
Large Lymphocytes	7 ;;
Small Lymphocytes	7 "
Eosiniphiles	10 '
Marked leucopenia in both	- ' ' ',

No 21 Indian Fever lasted 3 days. Severe pains No rash

Count 10th day, marked leucopenia

Polymorphonucleans	54 per cent		
Large Mononuclears	105		
Large Lymphocytes	125 ,,		
Small Lymphocytes	18 ,,		
Eosmophiles	5 ,,		

No 22 Indian Typical pains No iash.

Count 11th day

Polymorphonuclears	78 5	per cent
Large Mononuclears	0 5	• ,,
Large Lymphocytes	3	"
Small Lymphocytes	11	"
Eosmophiles	7	"

No 23 Indian Severe attack No tash Chart No XIII

Count 12th day

Poly morphonuclears	40 pe	cent.
Large Mononuclears	2.5	
Large Lymphocytes	13.5	"
Small Lymphocy tes	31 5	11
Eosmophiles	125	**

No 24 Indian Fever lasted 4 days Severe pains No rash

Count 13th day Moderate leucopenia

Polymorphonuclears	60 5	per cent
Large Mononuclears	3	• ,,
Large Lymphocytes	6 5	1)
Small Lymphocytes	12	11
Eosmophiles	18	1)

The average cosmophiles percentage of the first counts in the first series was 17 per cent, and of the later counts in this series 13 4 per cent. In arriving at these figures one case in which the cosmophiles never lose above 4 per cent is omitted, as also one case in which it was 5 per cent in both counts, these figures being within the limits of normal variation. Adding the figures of the cosmophiles counts of the second series to those of the later counts of the first series the average is 13 8 per cent, after omitting one case in the acute stage, one in which the cosmophiles were only 5 per cent, and one in which they were 79 per cent, it being doubtful whether the attack of dengue was the sole causative fact in this case.

The 24 cases which furnished the material for these observations were in no way selected. The series might have been made much larger had time, and the pressure of other duties permitted. They are practically a consecutive series, and it will be seen that in every single case (with the exception of No 13 where a second count was not done) there was an increase in the cosmophiles during the postfebrile stage of the disease, although in three cases it did not exceed 5 per cent, in all the other cases it averaged 13 4 per cent—13 8 per cent.

In several cases the faces were carefully searched

In several cases the faces were carefully searched microscopically for the ova of parasites with negative results, nor was any other possible cause of the

eosinophilia ever found. That it occurs at about the same time as the rash appears or should appear is noteworthy, but I found no difference in the amount of eosinophilia between those cases in which, a rash was observed and those in which it was absent.

In most cases only 200 leucocytes were counted, this was due to the leucopenia, which rendered the counting of any larger number a lengthy and tedious process and would usually have involved the examination of a second slide. Major Rogers, IMS, has pointed out that by counting only the edges of a film one gets figures in which the polymorphoruclears and the eosinophiles are unduly high, the mononuclear elements preponderating in the parts of the film rather further from the edges. This source of fallacy, however, does not effect counts where there is extreme leucopenia, as it will be found in all cases that starting from one edge of the film one has worked well into the central parts of the film by the time 200 leucocytes have been counted

Leucopenia with rapidly developing eosinophilia is then the characteristic blood change towards the end of the first week of an attack of dengue As far as I know such a condition does not occur uniformly in any other disease, and may be looked upon as diagnostic Unfortunately it is too late in occurrence to be of use for diagnosis when most wanted-during the first few days of the fever The principal utility, however, of this observation, if confirmed, will be in the assistance "Three Day Fever" and "Seven Day Fever" with dengue Dengue is a disease so variable in every symptom and sign that, failing the isolation of the actual parasite, it has not been possible to settle upon any characteristic sign and use it as a test of the identity of doubtful cases. There can be no reasonable doubt that the epidemic which visited Calcutta this summer was dengue, nor have I any doubt that the cases which furnished my material were cases of dengue and I bring these observations forward in the hope that during the recrudescence of the disease which will in all probability occur next hot weather, they may be confirmed and established as of as-istance in determining whether "Three Day Fever" and "Seven Day Fever n are forms of endemic dengue or unrelated diseases

I have not had the good fortune to see a series of cases of Seven Day Fever, but concerning Three Day Fever I have some observations to offer In 1908 and 1909 I was stationed in Dehra Dun, and had the opportunity of seeing a large number of cases of three day fever which occured each year during the hot weather, and I was informed that a similar fever had been observed during the hot weather of 1907 Soon after the montoon broke, malaria made its appearance and the number of malarial cases increased steadily as the autumn advanced, the other type of fever gradually disappearing. Of course along with the cases of three day fever there were numerous cases of mala und relapses, fevers due do chills, sore throats, etc. and the number of cases being very large, it was not possible to make microscopical examinations for para sites and blood counts in more than a small proportion, so that an exact diagnosis was not made in many cases One fact in the distribution of the cases amongst the gariison was apparent from the start. The majority of the case of three day fever occurred amongst the 9th Gurkhas, a regiment which had recently arrived from Lansdowne, whereas the 2nd Gurkhas, who were permanently stationed in Dehra Dun, and the two batteries of Mountain Artillery, which were recruited from the Punjab, remained comparatively free This is what one would expect if three day fever is, as now appears to be the case, endemic in the plains of Upper India Regiments newly arrived from the hills would suffer the heaviest, those recruited in the plains or permanently stationed there having become com paratively immune It was during the course of toutine examinations of the blood of fever cases that

I lighted upon this postfebrile cases of fever in which malaria of large mononuclears were a few of the blood counts	d parasites and incre	ase
	s admission foi malar	rıa
1st Count, 31d day—	10	
Polymorphonuclears	19 per cent	
Large Mononuclears	14 ,,	
Lymphocytes Eosinophiles	60 ,, 7	
<del>-</del>	,,	
2nd Count, 10th day-		
Poly morphonuclears	62 per cent	
Large Mononuclears	12 ,,	
Lymphocytes	14 ,,	
Eosmophiles	12 ,,	
No 2 Recruit No previous	admission foi malari	ıa
Fever lasted 3 days. No parası	tes	į
1st Count, 2nd day-		- 1
Poly morphoniclears	78 per cent	- 1
Large Mononuclears	. 14	ı
Lymphocytes	. 8 "	- 1
Eosmophiles	. 0 "	
2nd Count, 9th day-	• • ,,	- )
Poly morphonuclears	47 5 per cent	- 1
Large Mononuclears	•• 47 5 per cent	- 1
Lymphocy tes	16 5	- (
Eosmophiles	20	- 1
	,,	- 1
31d Count, 39th Day—		- {
Polymor phonuclears	48 5 per cent	
Large Mononuclears	8.5 ,,	- 1
Lymphocytes	17 ,,	ſ
Eosmophiles	26 ,,	- [
No 3 Rifleman, 2 years' serv	nce No admission fo	<b>.</b> l
fever for past 6 months Fev	er lasted 4 days No	
parasites		1
1st Count, 2nd day—		
Poly morphonuclears	79 per cent.	- }
Large Mononuclears	19 per cent	- 1
Lymphocytes	10 "	- 1
Eosmophiles	1 ,	1
2nd Count, 9th day-	,,	- 1
Polymorphonuclears	<b>6</b> 0 5	
Large Mononuclears	60 5 per cent	- 1
Lymphocytes	85,	. ] ,
Eosmophiles	17 ,,	
	14 "	ĺ
3rd Count, 19th day —		
Polymorphonucleans	54 5 per cent	}
Large Mononuclears Lymphocytes	10	
Eosmophiles	22 5 ,,	-
	13 ,,	a
No 4 Reciuit No previous a	admission for malaria	1
total modell 4 unj	- Julian In	l
1st Count, 3rd day-		0
Poly mor phonuclears	49.5 not ount	a
Large Mononuclears	49 5 per cent 10	"
Lymphocy tes	37 "	t
Eosmophiles	35 "	- 1
2nd Count, 12th day -	· · · · · · · · · · · · · · · · · · ·	g fe
Poly morphonuclears	40.5	
Large Mononuclears	43 5 per cent	d
Lymphocytes	95 ,,	e.
Losmophiles	34	re
<b>.</b>	13 ,,	p
1st Count, 4th day—	ays Chart XIV	11
Polymorphomet	·	h
Polymorphonuclears	61 5 per cent	P
Large Mononuclears Lamphocytes	7	cr
Losirophiles	30	co
2nd Count, 7th day—	15 "	17
Polymorphopusts	"	th
Poly morphonuclears	55 per cent	ac
Luge Mononuclears Lumphocytes	6	an
Losmophiles	23 "	l he
Parties	16 "	fe
	- " "	te

	•		
	No 6 Recruit Fever lasted	d 3 days Chart XV	
	Count 6th day-	•	
	Polymor phonuclears	. 65 per cent	
	Large Mononuclears	8 ,	
	Lymphocytes	2 <u>0</u> ,,	
	Eosmophiles	7 ,,	
	No 7 Recuut Fever lasted	3 days Chart XVI	
	1st Count, 4th day—		
	Polymorphonuclears	82 per cent	
1	Large Mononuclears Lymphocytes	12 ,, 6	
ĺ	Eosinophiles	0 "	
l	2nd Count, 6th day-	V 11	
	Polymorphonuclears	64 per cent	
l	Large Mononuclears	8 ,,	
1	Lymphocytes	215 ",	
l	Eosmophiles	65 ,,	
l	No 8 Recruit Fever lasted	4 days Chart XVII	
l	Count 5th day—	-	
	Polymorphonuclears	45 per cent	
	Large Mononuclears	12 ,,	
	Lymphocytes . Eosinophiles .	32 ,,	
	<del>-</del>	11 ,,	
	No. 9 Recruit Fever lasted	3 days Chart XVIII	
	Count 4th day—		
	Polymorphonuclears	63 per cent	
	Large Mononuclears Lymphocytes	9 "	
	Eosmophiles	,,	
	These few observations are the	* ))	
		2 ODIV ANAS that I hav	

These few observations are the only ones that I have preserved in my notes The occurrence of eosinophilia appeared to me at the time to be of academical but of no particular practical interest, hence I did not follow up the point and establish it by a large number of observations But when I found the same phenomenon in a series of cases of undoubted dengue, its bearing on the question of the identity of these fevers became at once apparent, and I publish these observations in the hope that they may be found to be of some use in the settlement of this question

# THE PROBLEM OF DENGUE, THREE DAY AND SEVEN-DAY FEVER

BY W L HOSSACK, MD, DPH, Port Health Officer, Calcutta

CAPTAIN KENNEDY'S paper on Dengue, which has just appeared in the Indian Medical Gazette, November, 1912, is of particular interest, not only on account of its intrinsic value, but still more because it affords an opportunity for all to put on record their impressions of a most striking epidemic It also reopens, and in my opinion finally closes, an interesting contioversy as to the relations of three Indian fevers which have been given distinctive names, three-day fever, seven-day fever, and dengue, whether they are three distinct diseases, or three interchangeable and inseparable expressions of one very variable disease A short resumé of the history of the controversy seems advisable, particularly as it may help to bring opinions to a focus in 1905 Rogers added yet another to the many services he has rendered in the study of Indian diseases by publishing a detailed account of seven day fever, he des cribed it as an endemic fever confined to seaports and coastal regions and quite district from dengue This was very shortly afterwards followed by a description of three day fever in Chitial by MacCarrison MacCarrison admitted the great similarity between the new disease and that described by Rogers, but decided after great hesitation that they were distinct because in three-day fever there was no tendency to have either rash or terminal rise of temperature

Fooks now came on the scene with a description of an outbreak in Sialkot, in which three day and seven day types of fever, with intermediates, were present in the same epidemic. A rash was observed in some of the cases. He avoided stating conclusions, but the facts of his paper did this for him, it seemed clearly demonstrated that three-day and seven day fever were slightly differing expressions of the same disease.

Contemporaneously and, as far as I remember, quite independently of any Indian work, Ashbourne and Craig described an epidemic in the Philippines which they named dengue. Amongst the fever charts published were charts identical with those of three-day and seven day fever.

In 1908, Megaw entered the lists and collected and analysed the facts recorded by the various observers who have just been mentioned. As the result of his analysis he arrived decisively at the conclusion that all three were one and the same disease. Rogers failed to produce any arguments against the facts so ably marshalled by Megaw, in fact, he may be said to have retired behind the entrenchments of authority, and from that impregnable position he breathed reproaches on Megaw for his lack of reverence. All Megaw had done was to explain the greater severity of the dengue of the past, as judged by existing text book accounts, by the fact that the old observers probably overlooked the slighter and less typical cases, and had a tendency to over emphasise the striking features of the class of cases they deemed typical.

It is certain that Verchere and Elliot drew much more harrowing pictures of the 1872 epidemic than did Edmonstone Charles, when he originally put his description on record Quite possibly the disease increased in intensity and virulence as it progressed. One thing is certain that some of the text books fail to emphasise, as did the old observers, the importance and frequency of slight and atypical cases and that the fact that the disease is a very variable one. Instead, they lay far too much emphasis on striking cases which by no means represent the most typical and common form of the disease.

However, it is no longer necessary to work merely on the records of the past, or to be more accurate text book description as we have just experienced a huge sweeping pandemic which in every way conforms to descriptions of the past, particularly the Calcutta epidemic of 1871 72 as described by Edmonstone The typical Charles in the Indian Medical Gazette rash, both initial and terminal, has been less common in the present pandemic at least in the early stages of the epidemic, but even in 1872 Chailes was unable to verify its piesence in fully one third of his cases Cases of great severity have been observed, whether one regards the intensity of the pains, the high range of the fever, the liability to relapse, or the delayed and painful convalescence. The temperature charts agree with the descriptions and charts of the past and also with the descriptions and chaits of the past, and also with those of three and seven day fevers It is true that in the "Lady Fraser" epidemic the continued type of fever, the three day type, was chiefly observed, but it must be noted that Edmonstone Charles insists that relapses, and in them he includes terminal rise, are an accidental manifestation It is difficult to avoid the conclusion that Rogers is confionted with two alternative courses either he must contend that we have had three diseases or at least two simultaneously epidemic in Calcutta, or he must admit that Megaw was light and that alterations are necessary in his descriptions of both dengue and seven-day fever

In a recent discussion on the dengue epidemic Rogels laid emphasis on the fact that the pulse observed by D1 Dutt had been a rapid pulse as opposed to the slow pulse of seven day fever, my own observations have led me to a contrary conclusion, a rapid pulse has been quite exceptional and when it occurred it was almost always associated with hyperpyrexia. In the classical

descriptions of dengue there seem to be some divergence of opinion on this matter

Edmonstone Charles emphasizes the lack of relation of the rapidity of the pulse to the height of the fever scheme with characteristic thoroughness describes it as sometimes rapid, sometimes slow Etahan says it is not ordinarily a slow pulse Clayton says it may be rapid or little affected Manson, Jackson, and Castellani make it rapid at a rate increasing proportionately to the temperature

The three main points that have to be settled are -

- (1) Is the dengue of 1912 in Calcutta the same as the dengue of 1872
- (2) Does the dengue of 1912 include individual cases and outbreaks indistinguishable from cases and out breaks of three and seven day fever
- (3) Is it possible that dengue is inseparable clinically from three and seven day fever, but that these latter are nevertheless distinct diseases

As to the first question I think there will be no disagreement. Dengue in 1912 practically does not differ at all from dengue in 1872

As to the second I shall be glad to hear the points on which the outbreaks and cases of 1912, particularly the "Lady Fraser" outbreak, are to be distinguished from three and seven-day fever

As to the 3rd question it may be suggested that it is time that this dengue epidemic in many individual cases, cannot be separated by clinical tests from three and sevenday fever, but nevertheless it is clear that dengue is something quite new to this generation from the fact that it has attacked all and sundry even those who were immune from seven day fever, either from an inherited immunity as in Bengalis, or from an immunity acquired from pre vious attacks, as in Europeans It seems to me that in such an argument a great fallacy is involved assumes that when a great pandemic of any disease occurs, the said disease cannot have previously existed in a community in a spotadic and endemic form, other wise there would have been too much immunity to allow the disease to break out as a pandemic But such an assumption is contradicted by many of the findings of epidemiology It frequently happens that the origin of epidemiology a pandemic is found in sporadic and endemic cases of the same infection and that this infection has suddenly undergone a great exaltation of virulence How else are you to explain the devastating small-pox epidemic that swept Calcutta in 1909 It was so virulent that it not only broke down the protection afforded by vaccina tion, to a considerable extent, but even broke down the protection afforded by a previous attack of small-pox Fatal results were recorded in cases well marked with small pox I cannot close this part of my argu ment more suitably than with a quotation from Verchere Writing in 1879 of the Calcutta dengue epidemic of 1872 "The disease is endemic to a very small extent in Calcutta and other localities in tropical climates and it is then non contagious It is susceptible of acquiring epidemic exaggeration and it then becomes a true travel ling epidemic." Now let us leave controversial argu ments and deal with what, it must be admitted, are very fragmentary records of the epidemic as I have experienced it

## BEGINNINGS OF THE EPIDEMIC

The earliest case that I came across, one that I failed to recognise at the time, was that of a topaz on the P & O "Saidinia," by name Francis Fernandez He was found on the ship as she was going to sail on 4th May 1912 He had a temperature of 103, pulse 120—he was walking about—had marked headache and pain in the back and had a profuse brick red macular rash on arms and chest, showing up clearly though the skin was very dark. I sent him to the Campbell Hospital, as possibly a case of small pox with abnormal prodromal rash. He was discharged from hospital three or four days later

with a diagnosis of "simple fever with some pickly heats" (sec)

OUTBREAK ON THE DREDGER "SANDPIPER"

On the 9th May, 1912, the dredger "Sandpiper" came into poit from down the river with 11 cases on board which I diagnosed as dengue I put her into quarantine as I had no knowledge that the disease was then prevalent in Calcutta The patients were suffering from short fever of two to four days duration, the temperature running up to 102 and 103 In this first batch there were only one or two with a slight rash Dr Elmes was put in medical charge and on the 12th and 13th Major Rogers visited the ship and confirmed the diagnosis By that time two Europeans and 30 natives had been attacked and 14 were convalescent On the 14th I released her from qualantine as I had found out that dengue was prevalent in the city found the gunner on that date suffering from fever with a profuse red rash all over the body. On the 17th when she had returned to work down the river one European and four natives were attacked, one of the natives was a relapse case, having been already attacked in the first batch Pains were not a predominant feature in this outbreak, there was nothing comparable to the bone-breaking fever of text book descriptions, so nuch so that the diagnosis of dengue which I had given was a guarded one

## OUTBREAK ON P V "LADY FRASER"

The vessel had been lying in port for over a month when on 30th May 1912, I received intimation of an outbreak of infectious disease, which had broken out three or four days previously amongst the firemen Ou this date there were seven cases and between this and the 7th June, 18 cases in all developed, these cases constituting the first half of the epidemic. The position of things on the 7th of June was that two of the 18 cases had been sent to hospital, one with pneumonia and another with doubtful chest symptoms—he was discharged well in two or three days—and the rest were convalescent and for three days there had been no fresh cases It proved impossible to detain the ship any longer as her consort was out of coal, so on the 8th she went down to the Sandheads On the 10th she reported by wireless three fresh cases, and when I went down to her on the 13th June, I found 11 fresh cases From the 14th to the 17th seven more cases occurred, making 18 in all in the second batch. I must apologise for the very scanty records I have to give, Dr Elmes was in medical charge of the first batch and as for the second batch, well the monsoon was coming in, the "Lady Fraser" is a notorious roller and to put the tiuth plainly I was not in a position to make very full or accurate records, but still I recorded in my visits two or three times a day any departure from the average in puns or temperature or presence of rash "No rash" was particularly noted. The best thing I can do is to quote from my official medical report

## MEDICAL REPORT

The medical aspect of the outbreak is of some interest. Though the epidemic was diagnosed as dengue, the cases were by no means very typical Rash was almost completely absent. In 7 cases of the first batch seen on the 31st May only one had a doubtful rash, one subsequent case of the batch of 18 had a fairly marked rubeoloid rash, while none of the 18 of the second batch shewed any rash at all. Temperatures were taken morning and evening, but only one or two of the cases shewed any tendency to terminal rise. The average duration of the fever was only two days. The average maximum temperature was 102 F, while 4 cases had 104, one rising to 1045. The pulse tended to be slow, about 90 or less. One man was found in a somewhat collapsed state on the second day of fever, with a pulse of only 50. In the first batch joint pains were not very marked in some of the cases, but in

the second batch nearly all complained bitterly of these sometimes for a day of two after the fever had gone. A burning pain in the chest was complained of by several. The typical double attacks of dengue as described by Manson were almost completely absent. There was only one case of relapse—Mahomed Ali, Frieman. He had an attack in Calcutta, went to sea cured on the 8th, but got ill again on the 14th June with pulse 100 and temperature 104.2. On 15th June his morning temperature was 101 and on 17th he is noted as recovered. Only two of the extra friemen imported on the 19th June subsequently developed the disease. The first got ill on the 22nd June. This would point to an incubation period of only three days. Another, one got ill on 25th June, which gives an incubation period of six days.

However, it is very difficult to be definite as to the incubation period, considering the fact that the disease started in Calcutta amongst the firemen about the 27th May, and it was not until 16th June that the last case developed No cases developed amongst them from 5th June until 10th June, and from this date until 16th June no less than 11 cases were found, all amongst the men who had been on the ship from the beginning of the epidemic It should be noted that firemen and lascars share one common forecastle In the first outbreak, lascars predominated, in the second outbreak, firemen In port the lascars had hard work and exposure to heat, while painting and cleaning up At sea the engine room staff had most of the work and exposure to great heat. This seems to point to the fact that there is such a thing as partial immunity, i e., an immunity that breaks down only after prolonged exposure to infection, and then only when the general conditions of work aid circumstances are unfavourable to the patient. The captain is a notable case of delayed infection. It was not till the vessel had retuined to port, after he had been exposed to infection for over a month, that he developed the disease

It has been suggested in the Philippines that dengue or seven day fever is conveyed by mosquitoes (Culex), and in India and Europe by sandflies (Phlebotomus) The facts of this outbreak are rather against such a theory During my four days' stay on the ship I saw no mosquitoes, but the Chief Engineer informed me that the ship was not quite free of them, he had seen one or two in his cabin on 16th June, the ship having reached Sandheads on the 8th June At the Sandheads she lay quite 40 miles from the land, and was being scoured by a strong landward breeze (the first advance of the monsoon) so most of the stegomy a that swarmed on her in port must have been blown out of her, for it must be remembered that she was cruising about and presenting every quarter to the wind in turn. It is certain at least that conditions were extremely unfavour. able for the conveyance of the disease by either phiebotomi or mosquitoes, as the disease developed in at least 7 of the cases, of the second batch subsequent to the 14th of June The ship sailed on the 8th, so that reckoning on an incubation period of three to six days, most of those 7 must have been infected at sea case of the extra firemen, who developed the disease on the 22nd and 25th June, it is practically certain that their infection was obtained at sea under conditions which made insect infection at least unlikely should be noted that pilot vessels are kept as clean as a Man o' War, so that phlebotomus breeding is almost out of the question on board these vessels

Individual Cases —I wish to quote one or two cases which have come to my knowledge privately, as cases indicating that in individuals at least, the maximum severity of dengue as given in text book descriptions has been fully equalled in this epidemic

Case I — Major A, 36th Jacob's Horse, Alipore Presumably one of Captain Kennedy's cases He had three attacks in seven weeks, was invalided to Darjeeling and returned limping with recuirent shifting

pain in the joints I saw him again on the 25th November, 1912, and he informed me that he still was not clear of pains, about five months after his first attack

Case 2—Miss J had an attack of dengue in July Had agonizing pain so that she could not move in bed without ciying out It hurt even to breathe No relapse and speedy convalescence Compared her pain to rheumatic fever, which she had seen

Case 3 -A bearer in 10, Belvedere Road, treated by This was a case in which the pains were negligible and only a doubtful eigthema about the face was present in the latter stages and a tendency to hyperpiexia was the leading symptom. The original attack lasted six days and his temperature starting at about 103 kept high, and on the fourth day rose to 105 For nearly 30 hours it kept at from 1045 to 1048, and I was ready all the time for sponging and cold pack. On the sixth day it came down to 103 and on the seventh he had a sub On the sixth normal temperature That very day he went back to his own residence but two days later he returned for further treatment with a temperature of nearly 104 days this had gone down and then he rapidly recovered He was a typical case of relapse with tendency to hyperprevia. The pains were almost negligible and the rash (a terminal rash) was almost imperceptible pulse was at first slow about 90 but eventually reached 120 and resembled a plague pulse

#### Conclusions

- (1) Identity of the 1912 Calcutta epidemic with previous Calcutta epidemics of Dengue 1 think this is generally admitted
- (2) The 1912 epidemic comprised cases and particular outbreaks, notably the "Lady Fraser" outbreak, clinically distinguishable from three-day fever, and as at present exemplified only by Captain Kennedy's paper, indistinguishable from seven day fever
- (3) The evidence recorded in Captain Kennedy's recent paper is against the theory that dengue is carried solely by phlebotomus and the facts of the 'Lady Fraser" out break, are against the necessity for a specific insect carrier of any kind. In the Alipore epidemic phlebotomus was not found at all in what was evidently a family extensive and complete insect survey. In the "Lady Fraser" epidemic, the conditions in the later stages of the epidemic were such as almost to preclude insect carriers.
- (4) The recent pandemic seems to be an expression of a very variable disease caused by an ultra microscopic organism which is endemically present in Calcutta and evinces its presence by giving rise to what have been described as three day and seven day fevers

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A TELEOLOGICAL WORKING THEORY OF THE ASYMBIOTIC RELATIONS OF THE MALARIAL PLASMODIUM TO ITS ALTER-NATIVE HOSTS—MAN AND THE ANO PHELES MOSQUITO \*

BIN POGORMAN LALOR, MB, BCH, DPH,

MAJOR, IMS

[Communicated to the Burma Branch, British Medical Asso ciation, December, 10th 1912]

The varying epidemiological and endemiological phenomena of malaria in a single locality from year to year, and coincidently in different localities under varying local conditions, are so complex, that speaking for myself I have long felt the need of a working theory of some kind to give direction to investigation

The consideration of facts at first sight apparently irreconcilable has gradually led me to definite conclusions, which I now venture, gentlemen, to lay before you, as providing that rational basis for investigation which the complexity of the problem demands

We start with the fact that the malaral plasmodium passes, its sexual phase in the anopheles mosquito as alternation host, and that certain anopheles of definite species act so frequently in nature in that capicity that they are regarded as definite inclaim anopheles of species which do not carry inclaim under natural conditions, have been found to do so under the artificial conditions of human experiment

These facts are well-known, others of more recent discovery do not yet appear to have attracted the atten-

tion they deserve

During considerable epidemics of malaria which have occurred in India within recent years, common and widespread local carriers—such as Culicifacies and Listoni—examined in large numbers for their direct incrimination, have failed to exhibit sporozoit infest ation

In the Andamans during 1911 Major Christophers found that of local potential carriers Ludlowi alone was active in that capacity, while coincidently at Kyankpyn on the Burmese littoral—a place whose local conditions differ but little from those which characterised the field of Major Christophers' investigations, my investigations revealed that Fuliginosus was active as a malarial carrier while Ludlowi was not Elsewhere in some localities Fuliginosus has been incriminated as the principal carrier, while it has been found to act but rarely in that capacity in others

My zorhynchus Barbuostris has occasionally been found to act as a carrier in nature, though at one time

supposed not to subserve that function

It will be seen therefore that the facts of mosquito inclaimly interrelation instead of being simple and fixed as has been thought, are really complex and fluctuating

As regards the malarial plasmodium in the human body and the phenomena—individual and general—to which it gives rise, we need an explanation of the following facts—(I) The periodic recrudescence of the disease at intervals in a single locality of three, five or even ten years, (2) The effect as regards intensification of malaria of the sudden addition to a malarial community by immigration of any considerable number of people who are either perfectly healthy or severally malaria-stricken, (3) The operation of poverty, defective housing and insufficient food, in intensifying malaria in localities where such conditions do not represent the normal state of the population, (4) The gradual lessening of malaria observed to follow the clearing of jungle and the establishment therein of those civilised conditions

<sup>\*</sup> Note — The author announced the theory developed in the following address on the 18th of November 1912, at the All India Malarial Conference in Madias

associated with the enlargement and extension of a rising town, (5) The discrepant results which have been observed to follow the use of quinine-

(a) By the healthy to prevent infection—Prophylaxis (b) By the infected to prevent relapse—Phylaxis—and the confusion which has arisen in attempting to decide the utility of quinine for each of these purposes, and the best manner of its employment (a confusion largely due to the fact that the term "Quinine Prophylaxis" has been indiscriminately applied to, the use of the drug in both capacities), (6) The fact-noted by certain Italian observers—of disappearance of malaiia in certain tracts, notwithstanding the continued presence of the species of anopheles regarded in such tracts as the special malarial carrier, and (7) The re-integration in certain localities as also noted by Italian observers-of formerly existent malaria for long believed to have been stamped out.

I shall now proceed to enunciate my theory by stating the law which, as I believe, will be found to cover by its operation the phenomena of malaria under various local conditions, and to determine the production in legular sequence of those special phenomena of periodicity which influence the prevalence of the disease

This law is as follows ---

"The viability of a parasite through its life stages in an insect host is the result of an asymbiotic relation between the individual parasite and the individual host, the terms of which are those of their relative vital potential If the relative vital potential of the parasite is too high the host dies if the relative vital potential of the host is too high the parasite is destroyed"

Applying this law to the facts of mosquito malaira inter ielation to which I have already invited attention, we should expect that for each separate species of anopheles capable of acting as a potential malarial carrier, there is a corresponding level of vital potentia of the malarial gametocy te in the blood of man, which determines for that special species of anopheles its capacity for acting as an efficient host throughout the

whole period of the sexual phase

Such species of anopheles will then act as a carrier in It will commence to functionate in that capacity as soon as ever the vital potential of the human gametocyte stage is such, as either to enable the plasmo dium to struggle successfully through its sexual phase against the vital potential of the mosquito, or the mosquito to preserve its existence against the vital potential of the plasmodium, and the mean between these two extreme limits, will condition the maximum infection of that species of anopheles from a constant human source Here, however, we have to draw a distinction between the relative and absolute infection of an anopheline during its effective period Its relative infection-a varying percentage of the species-will be increased in a population rendered unusually susceptible through overcrowding, economic privation, sudden and extensive immigration of the non-immune, or cumulative increase of the non immune in the shape of children below the ages of three, five, or ten previously unattacked by severe malaria Its absolute infection will depend upon its prevalence as a species Either factor may act alone or both may -in the same of in opposite phases-act together Now as the intensity of malaria in a given population is directly proportional to its prevalence, the operation of the law enunciated will eventually result in destruction of the anopheles concerned -eg, Culicifacies—before it is able to functionate as a malarial carrier. At this point the species will cease to act in that capacity, but either before or as soon as it has completely ceased so to act, its function as malarial carrier will be taken on by another species of local anopheles, eq, Fuliginosus—of higher vital potential And the larger the number of potential malaria bearing anopheles in the locality, the higher will be the general malarial level of the locality concerned, while towards

the end of the fever season at periods of recrudescence in such locality, the vital potential of the plasmodium in its sexual phase-corresponding to its vital potential as a gametocyte in the blood of man-may attain such intensity as to secure the viability of the plasmodium in species as resistent as Nigerimus and Barbiiostris, Under these conditions the intensity of an infection contracted late in the fever season will usually be propor-So far we have been considering the tional to its iaiity relation of plasmodium and anopheles from the stand-point of their relative vital potential. We have to take account further of the physical conditions of temperature and moisture under which this relation takes place I have given leasons in my leport upon malalia at Kyaukpyn for the view on the one hand, that variation in the relative humidity of the air does not influence this relation to the detriment of the plasmodium and on the other, that the average minimum temperature of the 24-hour day, if it fall below a certain level, does so influence it It lowers the vital potential of the plasmodium to an extent which attended or otherwise by viability through anopheles of lower vital potential, must eventuate in complete cessation of carriage this point the fever season is over These considerations appear to account for most of the phenomena of mosquito malanal inter-relation, but they depend intimately upon a varying factor

That factor is the vital potential of the plasmodium in its gametocyte stage as it is obtained by the mosquito

from the blood of man

Assuming that the population of a malarial locality is a stationary population in which the number of deaths is equal to the number of biths, the mean level of malarial intensity will depend upon the length of scale of vital potential covered in continued series by the potential malarial carriers of the locality, and variation of malarial intensity (apart from periodic variation due to the cumulative presence of children from birth to the ages of 3, 5, or 10 years who have not yet suffered from severe malanal infection) will be due to the relative and absolute infection of potential malarial carriers during the fever season

If this view be correct it will be obvious that the destruction and the disappearance in a malarial locality of anopheles of higher vital potential should reduce the mean level of malarial intensity ultimately to vanishing point, and this furnishes one explanation of the fact that jungle clearing, building, and other works of civilisation, in an area previously malarious, when conducted gradually and without extensively imported coolie labour, are accompanied in instances, by diminution of the disease even to the point of disappearance A previous prevalence of Ms Barbirostris and Ms Nigerrimus is very often largely reduced under such circumstances.

Let us now turn in the plasmodium in its gametocyte

As a preliminary to consideration of this phase it will be correct for us to premise, that the presence of gametocytes in a fresh blood specimen does not necessarily prove their ability to accomplish that sexual interaction in the stomach of the mosquito which results in the ookinet, any more than does the presence of a zygote in the outer wall of the mosquito's stomach necessarily postulate the eventual materialisation of sporozoites in its salivary glands

The residual vital potential of the gametocyte, and the relative vital potential of the mosquito concerned, will be determining factors in the full accomplishment of the sexual cycle This view has been already amplified as regards mosquito malarial inter-relation We have now to consider it from the point of view of the relation between plasmodium and man

From known facts of this relation certain deductions may be made as regards the teleological behaviour of the plasmodium in the blood of man These are as follows The plasmodum - as long as it is not subjected to adverse influence in the circulating blood on the one hand, or granted easy facilities on the other for the

permanent reversion to its sexual phase, re, for transfer to the mosquito, will continue to lead its sexual phase. But if adverse influence be present in the shape of processes of natural destruction due to acquired immunity of the individual, or in the shape of an artificial process of destruction due to the presence of quinne in the circulating blood, the plasmodium will assume the gametocyte stage and will maintain it as long as such adverse influence is predominant.

But the gametocyte stage being a lesting one in which amceboid movement does not take place, nutritive processes may be assumed to be at a stand still, and the plasmodium to be gladually losing in vitality as a consequence. When such influences no longer pre dominate, it will be natural for the plasmodium to exercise its vitality in the recovery of lost ground by

the accomplishment of Parthenogenesis

Here we have at all events, an intelligible explanation of the occurrence of fever, either as result of severe chili, or of the stoppage of quinne by a chronic malarial subject who has been consuming the drug regularly Gametocytes being all of the same phase and accomplishing Parthenogenesis at or about the same time will naturally give rise by their extended development to the simultaneous appearance of a large number of merozoites in the circulating blood

Parthenogenesis has been observed in fresh blood specimens, and its occurrence is well authenticated. But the lowering of temperature to which blood is subjected in process of withdrawal is teleologically calculated to encourage gametocyte formation rather than Parthenogenesis, and the behaviour of the plasmo dum in fresh blood specimens, therefore, affords us no index as to the frequency with which Parthenogenesis occurs in the circulating blood and internal organs of

man-particularly the spleen

In the course of my investigation at Kyaukpy it had occasion to observe that crescents present in the blood of children in the month of October 1911, were absent when the blood was examined after the cold weather had set in. There had meantime been no fresh infection, for the infective season had definitely closed with the mouth of August 1911. Presumably crescents disappeared in the cutaneous capillaries as a result of their contraction, and re-appeared as a result of their dilatation and the determination of large blood supply to the skin with the returning hot weather, and it is probable that from such of these crescents as possessed sufficient vital potential, the mosquitoes found infected in the course of May 1912 derived their infection.

It is admitted that young children who have not previously suffered from malaria possess greater tolerance of—and less resistance to—the plasmodium, and that the plasmodium finds therefore in the blood of such children a perfect medium for its conservation. The child, however, gradually acquires immunity. This immunity is rapidly established in children who survive a severe attack of malaria, and though the effects of the attack remain—in the shape of enlarged spleen and cachexia—the child is probably immune to fresh attack, while its blood becomes a less and less favourable medium as time goes on for the conservation of the plasmodium

During a year of recrudescence in a malvial locality the whole population will suffer severely and will subsequently be immure to fresh attack, but in the year following and subsequent years a gradually increasing addition of the non-immune will take place in a stationary population in proportion to the birth rate. Hence a gradual fall of malarial mortality to a minimum level in years immediately following recrudescence, followed by a gradual rise once more from the minimum to the maximum, and the interval which clapses in years, between these phases of maximum and minimum intensity, will—in a stationary population with a constant birth rate—be directly proportional to the mean level of malarial intensity, this again being directly proportional to the length of scale of vital potential in

continued series, of the potential malarial carriers of the locality

If, in practice, there should prove to be any exceptions to the operation of this theory I am inclined to believe that these will lead us directly to the discovery of that source—if source there be—from which, other than the blood of man, the anopheles mosquito derives its infective power. To this—the remaining side of the malarial problem—we cannot remain blind, for it must strike us that the discovery of sporozoits in the salivary glands of a mosquito such as Fuliginosus—which happens to have been caught after feeding for days upon the blood of man—is not necessarily a proof that these sporozoits are in every case humanly derived.

From the search for transition forms in the ovum and laive of anopheles one does not hope for substantive results. But it should be possible by hatching in captivity and keeping alive individuals of a known carrying species in a highly malarious locality, and by feeding these upon vegetable juices and examining them at various periods after birth of the Imago, to ascertain whether and under what circumstances sporozoits

eventuate

Gentlemen, I should trespass needlessly upon your time and attention were I to present in detail a programme of investigation with a view to the proof or disproof of these suggestions. The heads of such a programme—eq, investigation of the sporozoit rate of dead anopheles found at breeding places, as compared with that of caught specimens of the same species in the same locality during the same period—readily suggest themselves

My excuse for this communication at the present time is the necessity of a published basis of some kind for rational investigation of so much that is complex and obscure, and personal belief that the basis suggest ed will be found to furnish a satisfactory explanation of diverse and hither to reconcilable facts

When we think of the widespread mortality in this country, and in India for which malaria is responsible the necessity for such a basis of investigation is

apparent.

Had it not been for Manson's theory and its triumphant vindication by Ronald Ross we should still in all probability be surveying the malarial problem helplessly and hopelessly. To his distinguished researches officers of the service to which he belonged are indebted for leave to approach the further problems presented by malaria in a spirit of confidence and hope. If further steps lead us in a wrong direction we can always return to the starting basis he has provided, and take another of the roads which open therefrom. We hope thus before long to find the right road, and if my present communication shall have in any degree contributed to that end it will have fulfilled its purpose.

# SANITARY ORGANISATION OF OUR ARMY IN INDIA IN WAR\*

BY B HEHIR

COLONEL, IMS,

Assistant Director of Medical Services, Burma Division

The function of the sanitary service in war is to keep the greatest possible number of men in the firing line, by excluding preventable disease from the fighting force. We now fully recognise that in tropical and subtropical countries, more than in temperate regions, it is infective disease, rather than injuries inflicted by the enemy, that depletes the fighting ranks. The war statistics of all tropical colonial armies abourd with melancholy records of this fact. In Indian Frontier warfare there is often a six fold increase of bacillary

<sup>\*</sup> A Lecture delivered to the Officers of the Maymyo Garrison, Burma Division, 6th Dec., 1912,

dysentery, diarrhoea (much of which is probably infective enteritis), and enteric fever, as compared with their peace time incidence, whilst malarial fever is usually increased about 20 or 25 per cent. The methods of preventing disease in war, however, should be based on principles that are practised in peace-time on divisional and brigade manœuvres, regimental and company training.

The Director of the Medical Services, His Majesty's Forces in India, at Army Head quarters, is the responsible adviser of the Commander-in-Chief in India, on all subjects dealing with the health of our Army in India On the outbreak of a war, he may be expected to give his opinion on matters connected with the country to be invaded that may affect the health and efficiency of the troops-its climate, and medical topography, the rations, clothing, shelter required, sanitary arrangements, special diseases prevalent in the country, and any special canitary precautions to be observed and the organisation necessary, for the prevention of disease amongst the He issues to the Director of the Medical Services of the force such special instructions regarding sanitation and the health of the troops as he considers neces sary to meet the conditions of the particular campaign entered upon Similarly, the Director of the Medical Services, who is the head of the medical service with a force in the field, is the responsible technical advising staff officer of the Commander-in Chief and his staff in the field, in connection with all matters affecting the health and medical arrangements of the force the general officer commanding he has supreme control over the medical services and sanitary services con nected with the field force He ordinarily remains at the head quarters of the field force In smaller forces, and in operations where divisions may be working on more than one line, the head of the medical service of the force is a Deputy Director of the Medical Services The Director of the Medical Services in India must necessarily be responsible under the Commander-in-Chief for both the medical and sanitary work in peace, the same holds good with the officer holding that position with a force in the field Similarly, Assistant Directors of the Medical Services (in peace), and Administrative Medical Officers (in war) of divisions, must be responsible for both the prevention of disease and the care of the sick. While these latter officers may delegate their powers in sanitary matters to their sanitary officers they cannot hand over their sanitary responsibilities to them, otherwise there would be overlapping of work, a dual system of orders, and consequently more or less confusion Our regulations lay down that it is the duty of administrative medical officers of divisions, senior medical officers of brigades and medical officers of units to advise their respective commanders on all matters concerning the prevention of disease and physical efficiency of the troops, the responsibility of carrying out such recommendations rests with Medical Services and all serving under him, to adapt their sanitary measures to the military situation as formulated by the Commander-in-Chief, and this holds good of all forces in the field, no matter what their size We may on particular occasions be of opinion that the troops are over-worked, over-marched, or too much exposed to inclement weather, etc,—and it may be our duty to let him know the possible consequences, but once he has decided to accept these consequences, it is our imperative duty to support him loyally and make the best of the circumstances Our object is to assist him in defeating the enemy by keeping the ranks of the fighting men as full as the sciences of medicine, military hygiene, and sanitation, can help us in doing

The Director of the Medical Services advises the general officer commanding the force on all questions relating to rations, clothing, shelter, sanitary arrangements, precautions for pieventing disease, and on all other questions having reference to the physical efficiency and health of the force On being informed of the

inordinate prevalence of any disease or of the existence of any epidemic disease, he, with his sanitary officer, immediately investigates the cause of the same—ascertains whether it proceeds from or is aggiavated bydefects in cleanliness, dramage, nuisances, over crowding, defective ventilation, bad or deficient water supply, a faulty conservancy, dampness, marshy ground or any other local cause, or from bad or deficient food, intemperance, unwholesome liquor, fruit, defective clothing or shelter, exposure, fatigue, or from any other He reports to the quarter-master general on such causes, and the measures for their removal, and furnishes the general officer commanding the field force with a daily report on the progress or decline of the From time to time he submits to the Director of the Medical Services, His Majesty's Forces in India, a report on all subjects connected with the hygiene and sanitary state of the aimy in the field, reporting also any special measures he has recommended with the action taken thereon, and the results He advises on the sanitary arrangements of the camps and of occupied towns and villages, and reports whether the surface and vicinity of camps, towns, etc, are kept clean, whether dramage of surface is properly arranged for, that the dead are being properly interred, whether carcases are properly builed or disposed of, and whether the water-supply is kept pure Should there be no Assistant Director of Medical Services or other administrative medical officer on the lines of communication he administers that charge also The Director of Medical Services inspects the medical service and field ambulances connected with the field force, assures himself that everything connected with it is in an efficient condition and according to regulations He assures himself that the sick of corps unfit for duty are sent to the field ambulances and do not encumber the fighting force, and that the field ambulances with the fighting line are not overcrowded

The administrative medical officers of divisions are the technical advisers of their commanders on all medical and sanitary questions. They are responsible that everything connected with the health of the personél of their divisions is duly carried out, and that camp sanitation generally is attended to. The administrative medical officer has as his staff officer the divisional sanitary officer. There is no special sanitary organisation for a brigade unless it is acting independently, in which case the senior medical officer of the brigade acts as medical and sanitary adviser to the brigade commander, and carries out the duties pertaining to a divisional sanitary officer.

# DUTIES OF DEPUTY ASSISTANT DIRECTOR OF MEDICAL SERVICES (SANITARY)\*

The divisional sanitary officer must make a thorough initial inspection of every camp in his charge. During this inspection he directs special attention to the water-

supply, conservancy, &c, in each camp

He should inquire minutely into the manner in which it is proposed to deal with cases of enteric fever, bacillary dysentery, epidemic diarrhœa, and other infectious diseases. Subject to such instructions as he may receive from the administrative medical officer, the divisional sanitary officer exercises general supervision over the sanitary condition of all places occupied by the troops of the division. Any recommendations he makes should show thoughtfulness with regard to the special conditions in existence, the facility for carrying them out, the available sanitary establishment, and, in general, their reasonable practicability. Whenever he deems it necessary, he renews his visits, and throughout the campaign, keeps a watchful eye on all conditions and causes liable to give rise to disease amongst the troops. Every camp with the force, however, must be subjected to a daily sanitary inspection by

<sup>\*</sup> Until recently this officer was called the Divisiona Sanitary Officer.

some responsible medical officer, this is indispensable The basis of this is the inspection by the medical officers of individual units. The wide scope of the duties of the divisional sanitary officers should be recognised by military authority, all information called for by him provided, and all recommendations made by him and approved by the administrative medical officer duly carried out. His specific duties are to prevent disease in the division Preventive measures decrease the causes of disease on field service Such causes in large bodies of troops on service are always in existence. In many cases the evercise of these functions requires much tact and firmness, but whenever any serious dereliction, slackness, or opposition is met with, it is to be instantly represented In this there can be no comto higher authority

The administrative medical officer, divisional sanitary officer, or medical officer detailed for the purpose, accompanies the staff officer appointed to select buildings or camping sites for the use of troops, and inquires into the sanitary condition of all towns and villages which it is to occupy, or near which a force is to encamp, special observations being made regarding the existence of any communicable diseases in such places The spread of communicable disease on service is fostered by overcrowding, continued occupation of camps, and the re-occupation of camps recently used by other troops, and it is of great importance that these should be avoided as far as is consistent with military

A medical officer, preferably the divisional sanitary officer if available, will always advise on the selection of water supplies for all purposes, and on the methods of protecting the source, and purifying, collecting, storing, and distributing the water. When necessary notices will be posted up showing, the uses to which any supply is to be put, or sentires are posted to ensure that instructions regarding it are carried out water borne diseases are frequently spread by troops themselves, protection of the source requires very constant attention "Whenever there is reason to very constant attention suppose that a water supply used for drinking or for kitchens may be contaminated, all water used for drinking or for kitchens is to be boiled under regimental arrangements, or subjected to such other method of purification as may be available "

The allotted number of field ambulances accompany the force into the theatre of operations One of the most important functions of these ambulances is the prevention of the spread of infectious and epidemic On the first indication of an outbreak of disease, the officers commanding field epidemic disease, ambulances in which the cases are in the first instance received, reports the circumstance to the administrative medical officer In the case of cholera, plague, and small pox, these reports are sent at once when the first An inquiry is immediately made by the divisional sanitary officer with the view to tracing the source of the disease and stopping its spread During the course of an epidemic full information as to its progress is given in the weekly returns of sick, and, when necessary, special reports are submitted tion and disinfection are carried out as completely as circumstances permit, and in all cases of infectious disease the excreta are, whenever possible, destroyed by beat

## DUTIES OF MEDICAL OFFICERS WITH UNITS

On the march to the theatre of operations and at the front the medical officer inspects the men once a week He should avail himself of every reasonable opportunity of being amongst the men, and note their condition He will give orders that all cases of indisposition are to report sick at once My personal experience is that men do not sham sickness when going on field service, and certainly never at the front, but the possibility of this happening should not be forgetter. The medical officer happening should not be forgotten

sees that lations are properly cooked, that the kitchens nie clean, and the cooking utensils are cleaned, that the men do not expose themselves to chill or the sun unnecessarily, that they bathe themselves and wash their clothes when opportunity offers On halt days, he will see that the tents are opened out, the kits aned and sunned, that when rain is expected, tent diains are dug, that the camp area is properly cleaned, and the latimes in as satisfactory a condition as possible

Medical officers of units make a daily sanitary ins nection of the tents or quarters of their units, satisfy themselves as to the sanitary condition of neighbouring places and the existence of otherwise of communicable disease in them and as to the wholesomeness of local food supplies. They are compelled by regulation to use every endeavour to ensure that the troops obtain a supply of pure, and, if necessary, sterrlised, water for the men's water-bottles, and that impure water is not obtained on the line of march In a general sense, so far as individual units are concerned, the preventive measures on field service should be no abrupt departure from those adopted in peace times on the march and

during manœuvies

The duties of a medical officer in charge of a unit on field service are specially onerous and responsible, because the unit is the first link in the chain of protective measures which safeguard the health of the division of whole force. He must endeavour in every practicable way to prevent undue depletion of the fighting force, and he must remember that it is most important to prevent the outbreak of infective disease, which originating in his unit, may spread to the whole Careful attention to details of sani division or force tation should always enable him to prevent the intro duction of such disease from without, but his main difficulty will be to prevent the spread of infection No matter how originating within the unit itself carefully and conscientiously men are inspected before being found fit for field service, it is almost certain that carriers of infective disease will be fourd amongst the men in at least some of the field force units Nevertheless, if medical officers of units take immediate action on the lines indicated, they should be able to prevent anything in the form of the 'mass" infection or explosive epidemic which has so frequently occurred in field operations. It will be seen that the duties of a medical officer of a unit, when carried out in their integrity, embrace comprehensive preventive measures. The medical officers of units of the present day have more power to insist on the carrying out of what they consider may improve the health of the men of their units than they had ten years ago, and the more they are men of action, the greater the influence they will have with commanding officers in this respect. The whole aim, in India is beginning to realise that the pilmary function of the military medical service in peace and war is not to treat disease, but to take steps that there be as little disease as possible to treat

It is most essential that the sanitation of camps of units be carried out thoroughly each day, especially when brigades and divisions are passing along the same ionte to manœuvies of to the front in succession Otherwise the camping grounds may become centres for the spread of disease in the force from the beginning of a campaign. The special points demanding attention are the prevention of pollition of all water-supplies, scavengering of the surface of camps and their immediate surroundings, the burning of all dry refuse and strict attention to the condition of the night then immediate surroundings, the outline of the night refuse, and strict attention to the condition of the night soil tienches, or incineration of excreta ment of the transport corps and transport animals generally, whether they be mules, camels, bullocks, donkeys or elephants, need special watching, as they are often most objectionable. The rule that obtains on a process of the most objectionable are special watching. the march in India should be rigidly observed on field service-all camp sites should be thoroughly cleaned up under the supervision of a British Officer after occupa-This cleaning is necessary as the camp will be required for other troops advancing to the front and possibly also on the return march

It now remains to state how all combatant ranks are educated and trained in military hygiene and samitation to enable them to carry out their duties in connection with the prevention of disease during peace and war All our military cadets have now to pass an examina-

All our military cadets have now to pass an examination in military sanitation before obtaining their commissions, and all lieutenants of European units are obliged to pass a similar examination before pronotion to captain Officers of companies, squadrons, and batteries of European troops, are obliged by regulation to give instruction in sanitation to their non-commissioned officers and men

The general officers commanding divisions and in dependent brigades arrange for at least one annual course of not less than four lectures and practical demonstrations in sanitation to combatant officers. The lectures are given at the herdquarters stations of divisions by the divisional sanitary officer, at other stations by selected officers of the Royal Army Medical Corps and Indian Medical Service

## Education of Troops in Military Sanitation

The importance of an efficient sanitary organisation in peace and war, whereby the health of the troops in cantonments and on field service is maintained and the total number and physical efficiency kept up to the highest possible standard, cannot be over-estimated, and the study of samtation and the preservation of health is incumbent on every officer, non-commissioned officer With the object of bringing about this and soldier sanitary efficiency and high standard of health during peace and war, various courses of instruction are given during peace time in our Aimy in India as part of the noutine training of the year. One of these courses is referred to above. Another is held yearly for the instruction of non commissioned officers and men of British and Indian units in the sanitation of barracks and camps The following numbers of non commissioned officers and men are detailed to attend the course from all units -

mı; C	on com issioned Officei 3	Privates
Butish Cavalry British Infantry Battalion Indian Cavalry Regiment Indian Infantry Battalion Battery of Company, Royal Artillery Company, Sappers and Miners	2 6 , 2 4 2 2	16 36 8 26 2

The instruction is carried out by officers of the Royal Army Medical Corps for British Infantry and by officers of the Indian Medical Service for Indian troops. The instructors are detailed by the general officers communding divisions and independent brigades. Any number of non-commissioned officers and men may attend this course. Definite text books are laid down that the course than 2 hours daily are devoted to lectures and demonstrations. It is definitely laid down that the course should consist largely of practical demonstrations.

Of the non commissioned officers and men of British and Indian units trained in sanitation The following are employed with their units—

Butish Cavalry Regiment British Infantry Battalion Other British units Indian Cavalry Regiment Indian Infantry Battalion Other Indian units	Non com- missioned Privates Officeis	
	· 1 · 1 · 0 · 1 · 1 · 0	4 8 1 3 8

The men just enumerated are those employed as a regimental canitary detachment in both peace and war

The comparatively large number trained in sanitation ensures that there will be a furly large reserve available of non-commissioned officers and men for both the regimental sanitary detachments and sanitary sections, vide infia

Theoretical and practical instruction in the military sanitation of peace and war is now being given to our troops in all our large stations. The following includes the more important subjects dealt with in a course of 24 of these lectures (12 theoretical and 12 practical), which I gave two years ago —

Nature and causes of preventable disease in the soldiei in peace and war in our Indian Empire, preven tive measures in connection with enteric fever, bacillary dysentery and cholera, malarial fevers, their nature and causes and the rôle of anophelines as malaria carriers, breeding places of anophelines and their nemoval, hygienic and saintary considerations connected with-recruiting, physical development of recruits, air and ventilation, the cleanliness of barrack rooms, hy giene of barrack room and tent life water-supplies, then sources, public water-supplies, purification, distribution, and storage of water for troops in cantonments and on field service, food supply, cooking of food, sanitation of kitchens, ablution places, latimes and unnaises, removal and disposal of excreta-pul system with tienching, incinerators, dry refuse, its collection and disposal, personal hygiene, camp sanitation, etc The practical demonstrations were conducted by visits of the instructing medical officer and the class to barrack 100ms, cook houses, ablution places, latimes and urmals, water-supply works and wells, night soil trenches and in cinerators, regimental institutes—coffee shops, canteens, acrated water factories, dairies (in which the possible sources of contamination of milk were pointed out and the methods of sterrization shewn and explained), regimental bazarrs in which the state of the food and beverages sold was pointed out, the slaughter houses were visited, live animals and carcases inspected, the way of disposal of offal pointed out, bakeries investigated and bread making explained, the dangers through duty workmen indicated, laundries and dhoby ghats visited and their proper working pointed out, the breeding places of mosquitoes and method of dealing with them and the duties of mosquito brigades gone over, anti malanal and anti-mosquito measures demonstrated, the manner in which flies breed and the methods of preventing such breeding shown and dilated The non commissioned officers and men of the class were also taken into the field and made to carry out all the work they would be called upon to do on service in connection with water-supplies, latrines and tienches, unmaries, disposal of diy iefuse, sanitation of kitchens, and the disposal of water therefrom, and camp sanitation generally

The duties of regimental sanitary detachments in peace consist in —Supervising within their lines, water supplies, the sale of food, conservancy, cleanliness, disinfection, and sanitary policing generally. While so employed they are not detailed for other duties except such military training as is necessary to maintain their military efficiency. The duties of these non commissioned officers and men are carried out under the strict supervision of the medical officer in charge of the unit lines, to whom the officer commanding the unit delegates authority to issue any orders regarding routine duties in sanitary matters. The medical officer of each unit is responsible to its commander for the efficient performance of the work of the regimental sanitary detachment

The duties of regimental sanitary detachments in uar consist in —(1) Supervision of water supply, including its protection, purification, and distribution, all apparatus, and chemicals required for these purposes are in charge of this detachment, supervision of food supplies, cooking and slaughter places of the unit, and the disposal of all waste water, disinfection, construction and supervision of ablution places of the unit, and

disposal of the waste water therefrom, night soil conservancy, refuse disposal, cleanliness of camps, including those of horse, mule, bullock, camel, or other lines, systematic collection and removal and disposal of refuse by burning or otherwise, and the construction of improvised places for these purposes, and act as sanitary police. While in the actual fighting arena, in front of the lines of communication, the sanitation of units and the areas which they occupy, devolves exclusively on the unit itself. The medical officer and the regimental sanitary detachment must look to themselves and then own unaided efforts for the sanitation of the unit. Before reaching the actual fighting arena, that is along the lines of communication from the base to the most advanced base, though units are responsible for the sanitation of the area which they occupy, they are assisted by specially trained and independent bodies of men forming the sanitary sections.

#### SANITARY SECTIONS

These are war organisations trained to their duties in peace time. The personnel of sanitary sections and sanitary squads are maintained or enlisted in the various divisional areas for allotment to the lines of communication. They are essentially divisional organisations. From 3 to 4 are attached to each division, the independent brigades having one each

Each sanitary section consists of -

	Commissioned Officers	Pinates
Butish	2	8
Indian	2	12
Menial Establishment —		
Sweepers	• 60	
Bildais (diggers)	10	
Bhistics (water carriers	) , 5	

commanded by a medical officer making a total of 100 The number of sweepers may be increased if necessary

The non commissioned officers and men required to form sanitary sections are taken from the non commis sioned officers and men of infantry units, who have been trained in sanitation and nominated by commanding officers of units on notice received from divisional headquarters during peace, a complete nominal roll for each section being constantly kept up. Commanding officers are responsible that the requisite number of trained men is always forthcoming. Any additional training that is necessary is arranged for by general officers commanding divisions. The sanitary sections primarily go through the special course of training in malitary by the sand field forth them, already illuded to military hygiene, and field sanitation, already alluded to, and this training is maintained by their being called out for work on manœuvies. On mobilisation one or more of the sanitary sections are called up by the Assistant Director of Medical Services, and placed in charge of a medical other. Under the orders of general officers commanding divisions all units will be informed of the number of non-commissioned officers and men they will be required to provide on mobilisation, and the section to which they will be appointed regulations require that the personnel of sanitary sections should be brought together and exercised during manœuvies and a medical officer of officers appointed to command them

The sanitary service on the lines of communication, as will have been seen, is organised on a more permanent basis toan that of field units. An Assistant Director of Medical Services is attached to headquarters, and is responsible to the Inspector General of Communications for the sanitation of the sites of camps, etc. His jurisdiction includes the base, and the advanced base, and all medical units therein. Under the Assistant Director of Medical Services is a Deputy Assistant Director of Medical Services (Sanitary), who is a specialist in military sanitation, and when necessary, gives his expert opinion on matters connected with the

health of the troops and the sanitation of the lines of communication

For purposes of sanitary administration the lines of communication are divided into sanitary districts and sanitary posts. As a rule the base, advanced base, or fail head and any specially important part of the lines of communication forms a separate sanitary district. Any towns and villages occupied by civil inhabitants may be included in a sanitary district. A medical officer with one sanitary section is appointed to each district, to form the nucleus of a sanitary establishment, which is supplemented by such hired civilian labour as can be obtained, should the menial establishment of the sanitary section be found to be insufficient.

#### SANITARY SQUADS.

There is no fixed strength of sanitary squads in our Indian sanitary organisation. They are formed from the sanitary sections as required. Sanitary squads execute the skilled work in connection with disinfection, the provision of pure wholesome water, including its collection, distribution, and storage, construction of improvised night soil and refuse incinerators, etc. One or more of the men are specially detailed to supervise the work of permanent fatigue parties or menial establishments employed for conservancy or other work in connection with sanitation. If a camp or road post has a railway station under military control, the squad exercises sanitary supervision over the water supply to the troops passing through, and over the conservancy arrangements generally.

#### SANITARY POSTS

These are formed at various road posts, camps, and rail posts (or rest camps) along the lines of communication. The Post Commandant (or Rest Camp Officer) is responsible for the sanitation of the post. A squad is to be detached from one of the sanitary sections, and will supervise as well as prepare the sanitary arrangements of the post. They are assisted by the ordinary camp police of units which arrive at the post (at the rate of 2 camp police per 100 men, including followers). The units occupying such camps will usually have their own sanitary personnel, who should be responsible for the proper sanitary state of the camp during occupation.

One or more sanitary sections are allotted to each line of communication or district and constitute the per-

sonnel at the disposal of the officer in charge

The duties of a sanitary section are allotted by the officer in charge and comprise -Supervision of water supplies, including protection, purification, and distribu-tion, all approatus needed for these purposes are in charge of the section, supervision of food supplies, cooking and slaughtering places, and disposal of all waste water at sail heads, camping grounds, or road posts on the lines of communication, supervision of ablution places, and disposal of all waste water thereof, in crimping grounds, rail heads, road posts, rest stations, etc, on lines of communication, night-soil conservancy, nefuse disposal, cleanliness of camps and animal lines at rail heads, camps, road-posts, etc, sanitation of camps of hued transport, camp bazaars, tailway stations, camps and sites for troops passing through, sanitation of roads between camps or posts and disposal of carcasses, carrying out of practicable sanitary schemes which are beyond the power of regimental sanitary detachments, and act as sanitary police, having the powers of military police, and wearing armlets marked "M P"

If a line of communication or district contains a town or villages the officer in charge arranges for the inspection of these places by non-commissioned officers and men of the sections. The actual personnel employed will depend on the temper of the inhabitants, the proximity of the town or village to the troops, and the general sanitary condition of the places at the time. If the buildings are made use of for the location of troops and for the formation of rest and convalescent

camps, a strict sanitary supervision of the civil inhabitants is required, and special airangements also are made for the provision of sanitary appliances to be used by the troops and convalescents, fatigue employed, when the menial establishment of the sanitary section is insufficient for this conservancy work, must also be supervised by one or more men of the sanitary Sanitary supervision of railway stations forms an important duty of the sanitary sections-pure water must be supplied to troops passing through, and the conservancy arrangements generally will receive constant attention

As soon as mobilisation is ordered, or if necessary, in anticipation of such order, the general officers commanding divisions are informed as to the number of sanitary sections they are to provide, as well as the destination of each, and the date they are required there receipt of these orders the requisite menial establish ments for each section is entertained, preliminary airangements will have been previously made for this by general officers commanding divisions, the sections formed, equipped and despatched under their own medical or combatant officers. On arrival at their allotted areas the sanitary sections forthwith take up such sanitary duties as may be ordered, and receive any transport required. It is of great importance that sanitary sections have everything ready before the arrival of the main bodies at the various camps, hence it is necessary, for them to proceed with the most advanced troops

The regimental sanitary detacliments of peace and war, and the samtary sections for war, are new organisations that promise to be of mestimable use in the reduction of disease during our frontier wars in the future They, or some modification of them, are applicable to all troops in campaigns in tropical climates We may say that our present sanitary organisation in India had its real birth after our South African War, that its growth has been continuous, and that in its present state of development, it forms one of the most efficient services of the kind that has been organised in

the tropics

Whilst the medical and field service regulations form the bases of our sanitary work in peace time in cantonments and on field service, each cantonment and each campaign has its own local conditions and circumstances which render it impossible for any code of legulations, no matter how comprehensive, to embrace all possible contingencies, hence medical and sanitary officers will often have to exercise their own judgment as to how to deal with conditions arising unexpectedly and not provided for in the Regulations

# A OVERCROWDING IN BARRACKS ON TUBERCULAR AFFECTIONS AMONG GURKHAS

BY C H SMITH, MD, FRCSE, CAPT, IMS, 6th Gurkha Rifles

On my arrival in this country my inspections of lines, barracks, etc., were only performed, I am afraid, under a stern sense of duty, very little real interest being displayed in this part of the conversation with my brother From officers I came to the conclusion that this attitude was not confined to myself Of course the importance of this part of the work is well-known to all, but as the results are not nearly so striking as those of the medical and surgical work in the wards the medical officer is very hable to regard it as less important than his ward work

The following short note it is hoped, will bring graphically before the medical officer the importance of this work in connection with tuberculosis, if only from the selfish point of view of saving himself the trouble of the treatment, isolation, etc., of these cases

It is a popular opinion that the Guikha is an individual who is extremely prone to all tubercular affections, and do what you will for him he will still contract this trouble This, no doubt, is to a certain extent true, but I think it has been somewhat exaggerated The Gurkha differs from the sepoy of other Indian regiments in that he lives in a climate which, for four or five months in the year, is extremely cold In these districts tubercular affections are by no means confined to the Gurkha soldier In the Abbottabad neighbourhood tubercular affections seem to be fairly common among the civil population during last year in Chitial there were several Gurkhas with physical signs showing considerable involvement of the lung and numerous tubercle bacilli in the sputum, who, under treatment, made a good recovery, and when invalided five months later showed no signs of active trouble in the lung and every sign of good nutrition

These facts seem to show that the Gurkha is not such a very susceptible person to tuberculosis as popular opinion would make him out to be

In the autumn of 1911 the Gurkha battalion of which I am the officiating medical officer marched from Abbottabad to Chitral barrack accommodation in the former station is distinctly good, better in many respects than that of many Indian regiments in the plains In Kıla Drosh and Chitral, as would be expected, where men are clowded into a fort, the first object of which is defensibilty, it is very much Here the barracks are bad in regard to ventilation, light and size In several of the barrack rooms only 341 cubic feet of air space is allowed per man The beds are so close to one another that it is difficult and often impossible to walk between them On a winter's night, if a surprise visit be made to any of these rooms, the air is found to be distinctly foul

In this battalion during the year previous to marching to Chitral the following cases of tuberculosis occurred -

Tuberculosis of lung Tuberculosis of the cervical glands	2 1
Total	3

Contrast these figures with those of the following twelve months in Chitral -

Tuberculosis of the lung Tuberculosis of the cervical glands Tubercular peritonitis Tubercular arthritis	7 2 1 1

Total 11 Before leaving Abbottabad, every man, who had been in hospital during the previous six months, was carefully examined, and all suspicious cases left behind at the depôt. So all men who went to Chitral were presumably free from disease

A most interesting point is brought out by noting the date on which these various tuber-cular cases were admitted to hospital. The battalion arrived in Chitral at the end of September

The first case was admitted in December
The second ,, , , ,, January
The third ,, ,, ,, February
Four cases were admitted in March
Four ,, ,, ,, May
During the following months no case was

admitted to hospital

Let us now consider the climatic conditions

during these various months

Up to the end of October the climate is quite pleasant, from the middle of November to the middle of March it is bitterly cold and the men naturally try to keep warm by filling up every opening possible in the barrack rooms. From the middle of May to September the whole battalion was outside the fort under canvas

If these two factors be compared, viz, the date of development of the disease, and the climatic condition at the time, it shows in a very graphic manner the effect imperfect ventilation has on the development of these tubercular affections

Now comes the consideration—can the medical officer take any adequate measures to combat tuberculosis in his regiment. Of course, if the barrack accommodation is bad he can recommend alteration of or the building of new barracks. Of course, this is usually impossible owing to expense, etc. But much may be done by seeing that windows, doors, etc., are kept open at night and not tightly closed as is usually the case.

In other infective diseases, as enteric fever, strenuous exertions are made to discover and eradicate any possible source of infection. This is very rarely done in the case of tuberculosis, all measures being directed to the improvement of ventilation, etc. Why should not attempts be made to eliminate these sources of infection?

Let us consider a few ways in which the tubercle bacillus may be distributed

The Guikha, like most natives, is a confirmed spitter and has no objection to depositing his sputum on the barrack room floor. The importance of this source of infection has been fully realized in Europe as can be seen from the stringent regulations regarding spitting in the street, tram cars, etc. But no attempt seems to have been made to stop it in the Guikha sepoy. It is useless to expect the Guikha not to expectorate, and equally hopeless to expect

him to get out of bed at night and go out into the cold to spit. The only thing is to provide him with some kind of receptacle placed so near his bed that very little trouble is necessary to use it. Cheap gamlahs might be provided and efforts made by the British and native officers to see that they were used. A certain amount of care would also be necessary to see that these gamlahs always contained some form of antiseptic. It is a common sight in hospital to see a sputum gamlah swarming with flies owing the antiseptic having dired up. These flies no doubt help considerably in spreading the infection.

When enteric fever is prevalent in a regiment prolonged and tedious examinations are made to detect the presence of "carriers" Why should not some steps be taken to detect those early cases of tuberculosis, who being still well enough to do their work, are busily infecting their fellows?

All Guikhas reporting sick with fever should be regarded with great suspicion. Almost invariably if a tubercular patient's medical history sheet be examined it will be found that before the diagnosis of tuberculosis was made he had one or two admissions for fever which is diagnosed as malaria or pyrexia of uncertain origin. Probably these attacks of fever were the result of the early tubercular trouble which was not detected, and the man was sent back to the lines to spread infection among his fellows. The possibility of tubercular trouble being present in these "fever" cases should always be kept in mind

As a help in the early diagnosis of these cases I have found Von Pirquet's cutaneous reaction of very great help. In two obscure cases, owing to a positive Von Pirquet's reaction, a diagnosis of tuberculosis was made in spite of the fact that the physical signs were by no means convincing Some months later the diagnosis was confirmed by the appearance of well marked physical signs and tubercle bacilli in the sputum

So much for the man who reports sick and so comes under the eye of the medical officer, can we not make some attempt to detect the man with early tuberculosis who still feels well enough to do his work?

A careful examination of the chest of every man in the battalion would be exceedingly tedious and of very little value. The early diagnosis of lung tuberculosis is usually a matter of prolonged observation as regards pulse, temperature, etc. If an examination of the whole battalion is decided on why should not a Von Pirquet's reaction be performed on each man? It is easily and quickly done and subsequent ill effects seem to be non-existent. Of course like all other reactions it has its fallacies, but if all men showing a positive reaction were taken into a hospital and carefully watched as regards their temperature,

pulse, nutrition, etc., most of the tuberculous cases would be detected

Lastly, a few words might be said about the isolation and invaliding of detected tubercular cases

It is the practice in most Indian troops hospitals to isolate those suffering from lung tuberculosis, as separate buildings are not often available, tents are used for this purpose tents are often at some considerable distance from the hospital, and so are not very easily efficiently supervised by the hospital authorities Hence this isolation is not always as complete as it is supposed to be, the patient holding large receptions of his various friends, who all sit in Here again sick attendants the tent with him should be warned as to the importance of using the gamlah for expectoration and care should be taken that a sufficent quantity of some antiseptic is kept in each

Owing to this difficulty of efficient isolation it is important to get iid of these cases by means

of invaliding as soon as possible

Invaliding boards often show great reluctance to invaliding those cases in which tubercle bacilli have not been found In many cases of undoubted tuberculosis bacilli are very few, and are sometimes missed altogether Such cases when brought before the invaliding board have often been under treatment for some time and sometimes show no signs of active The board is very apt to doubt the existence of the disease and refuse to invalid the case necessary invaliding is of course to be avoided, but of the two evils it is woise to send a man back to the lines to spread infection among his fellows than to occasionally invalid a man unnecessarily

#### Hospital Mirror Practice. of

REPORT ON CASES OF LEPROSY TREATED WITH LEPROLINE DURING 1911 12 IN THE BILASPUR DISTRICT

> BY T C RUTHERFOORD, MD, CAPTAIN, IMS,

Civil Surgeon, Bilaspur, C P

THIRTY two cases in all were treated, of whom all were natives of India

One case was received from the Mission Asylum in Mungeli and was treated in the Main Dispensary at Bilaspur, the others were all immates of the Asylum at Champa and were treated there

Of the thuty-two cases, twelve absconded before their condition on the termination of treatment could be recorded and are therefore excluded from considera-

tion in the report

Of the remaining 20 cases, nine were males and two were juveniles under 15 years of age All were of very

Fifteen cases were treated for a period of 153 days the remainder for lesser periods. The shortest period of treatment was 100 days

One case in which there was practically no reaction to treatment received doses of vaccine varying from 25 to 4 cc and case No 13, a girl of 10 years of age, received a regular dose of 058 cc All the other cases received, on every occasion, a dose of 10 cc, except one case as shown in table I

Injections were usually given at weekly intervals never at shorter ones Longer intervals were due to such causes as non-availability of vaccine, absence of the patient on leave, development of an abscess at the site of a previous injection, confinement, an attack of small-pox, etc The following table gives the total number of injections (doses) and total quantity of vaccine injected in each case

Case No	Total number of injec tions	Total quantity leproline injec ed in c c	Total period of treatment in days	Remarks
1 2 3 4 7 9 10 11 12 13 14 16 19 22 25 26	15 20 16 16 20 15 18 20 20 20 20 20 18 19 19	50 5 20 16 16 20 5 16 5 18 20 20 12 7 20 20 18 19 19	100 153 153 153 153 153 153 153 153 153 153	First 2 injections 175 cc Rost Do  First 2 injections each 1 c c Rost
22 25 26 28 29 31 32	19 11 11 14	19 11 11 11 14	153 124 137 146	

The method pursued in recording and treating the cases was the following

Printed forms were made out on which each item of interest in a case of leprosy would be recorded under its proper heading without the probability of its omission through oversight

A sample form is attached to this report in order to obviate the necessity of a long description beginning the treatment of each case full particulars were recorded on one of these forms Weekly injections of vaccine were then given, the morning and evening temperature chart being written up daily

The body weight, dose of vaccine given or reasons for omitting the injection were also recorded each week on

the temperature chart

In case No 1, a written record of the patient's condition was also maintained, entries being made from week to week This was the only case in which it was possible to attempt this because it was the only one under my continuous personal observation

It will be noted that there are headings and sub-

headings for every system of the body

The great majority of these headings were filled in after careful examination in each case but it was not possible to do so in all cases

For instance, case No 1 was the only one in which it was possible to make a complete examination of the blood and in no case was examination of the pelvic organs of female patients attempted After the termination of treatment a similar form was again filled in but special examination was confined to the principal organs and to those organs or tissues specially involved in Teprosy

The form was made especially full because it was desired to conduct a simultaneous inquiry as to the involvement of organs other than those to which reference is usually made in the text-books, eq, the thyroid gland, principal reflex arcs of the nervous system and less important organs of special sense such as those of smell, taste and hearing Some interesting observations were made in this connection, such as the frequency with which the knee jerks are abolished or diminished in leprosy, but as they are not directly within the scope of this inquiry, special reference will not be made to them

Having in this manner obtained a clinical record of each case the next step was to make a short connected summary of each, describing the symptoms present before treatment, progress and treatment and altera-tions in symptoms for better or worse found on examination after treatment

In addition to this summary of each case a chart of progress for each symptom in each case has been made out, a copy of which is attached In this chart symptoms which were unchanged have been recorded in plain type, those in which improvement occurred in thick type, and those in which deterioration occurred in a lighter one The presence of a symptom is indi

cated by the letter P and its absence by the letter A

An attempt has been made to record degrees of severity by the addition of numerals to the+sign thus  $+, +^2, +^3 +^4$ Examples ulceration in the nasal cavities absent before and extremely severe after treatment would be recorded in the appropriate column in light type thus  $\frac{\Lambda}{P^4}$ , whereas extensive areas of tactile an esthesia which were present before but absent after treatment would be recorded in thick type, thus A

This chart has been compiled in order to facilitate a numerical estimate of the degree of benefit received by each patient, and of the change, if any, in each purticular symptom in the total number of patients in which it was present

The following is a summary of the deductions made from it

TABLE No 2, gives the total number of symptoms, improved, unaltered and deteriorated, case by case, excluding symptoms which were not examined for again on the conclusion of treatment and the presence or absence of acid fast bacilli in navil or other smears, deductions from which would not be of clinical value

TABLE No II

Caso No	Total No Symptoms	Total No Symptoms Improved	Total No Symptoms Unaltered	Total No Symptoms Dotoriorated
1 2 3 4 7 9 10 11 12 13 14 16 19 22 25 26 28 29 31 32	9 10 10 11 8 11 11 9 8 3 10 5 8 16 5 9 10 8	0 4 1 1 1 1 2 2 2 1 1 2 3 3 0 0 2 2 1 2 2 1 2	9 5 4 5 4 5 0 5 2 4 9 5 4 4 11 12	0 1 0 7 4 5 5 2 1 1 1 2 4 2 3 3 3 3 4 3 3 4 3 4 3 4 3 4 3 4 3
Total	196	31	100	65
Percent age on 1st column		15 8	51 02	33 1

Now as to the indications afforded by this table will be seen that-

In only three cases did the number of symptoms which improved under treatment exceed those which deteriorated, that in three cases the number of each of these classes of symptoms were equal and that in the remaining fourteen cases the symptoms which had got worse were more numerous than those which had improved and that in eighteen out of the twenty cases the symptoms which remained in statu quo ante exceeded in number those in which improvement occurred, and that in ten of the cases they exceeded those in which deterioration occurred, and that in every case the sum of the unimproved and deteriorated symptoms exceeded that of the symptoms improved

Taking the total symptoms the ratios are very closely Improved symptoms deteriorated symptoms unaltered symptoms 1 2 3 symptoms

Now to contrast these results with those obtained from the clinical summaries of cases

Two cases were considered not to have changed appreci ably in any way, in three cases it was impossible to say whether improvement or deterioration was the greater and in the remaining fifteen cases deterioration was indubitable. In other words the results of the two methods agree very closely and shew that the great majority of the cases deteriorated under treatment

If these deductions are accepted the question imme diately arises " was the treatment directly responsible for the deterioration in the condition of the majority of the cases or was this only such as might have been expected to occur in the same period if no treatment had been adopted?"

Only a very close study of a large number of cases of leprosy extending over a prolonged period or, what might have been done in this experiment but was not riz, the observation of a greater number of cases as controls, could answer this question

Had improvement occurred in the majority of cases the results might have been criticised on similar lines

Speaking from clinical experience I consider that the deterioration in the condition of the majority of the cases was due to the natural progress of the disease and that the treatment had no influence for good or evil

In case No 26 the deterioration during the course of treatment was extraordinary and one cannot help thinking that the treatment was largely responsible although the superadded ringworm infection was largely responsible for the truly appulling condition of the patient's skin at the time of the final examination

It must be admitted that the consignment of the cases to the care of a sub assistant surgeon and non-medical missionary from the time of the administration of the first dose of leproline until the conclusion of the treatment cannot be said to have given the remedy altogether a "fan chance," and had it been possible for me to have seen the patients at regular weekly intervals a good dea might have been done by alterations in the size and intervals between the doses Still the quantities used and the periods between the doses were those recommended so that too much emphasis cannot be laid down on these points, particularly when it is remembered that case No 1 was under careful observation throughout the period of treatment

In conclusion, I would thank the Revd P A Penner, Superintendent of the Champa Leper Asylum and Sub Assistant-Surgeon Maroti Ram Krishna of the Janjgir Branch Dispensary for having so efficiently carried out the routine treatment and record of these cases

SHORT SUMMARY OF CASES TREATED

Case No 1 -Itwan, Native Xtian, d, aged 23 Date of admission 1st November 1911, duration of

treatment 100 days Symptoms on Admission—A few "doubtful" nodules of face A "doubtful" paten of loss of pain sensation on middle of right shin, numerous areas of diminished

# REPORT ON CASES OF LEPROSY TREATED WITH LEPROLINE DURING 1911-12 IN THE BILASPUR DISTRICT

BY CAPTAIN T. C RUTHERFOORD, MD, IMS,

Civil Surgeon, Bilaspur, C P





CASE No 22-ON ADMISSION



Case No 19 -On admission



CASE No 31 -ON ADMISSION

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·	,	 -	

pigmentation on tiunk, aims and buttocks Much superficial ulceration on anterior portion left, side of septum of nose and nodule in similar position on right Thickening of right ulnar and both musculo

Large lencome of both corne, probably not leprous as had existed from infancy, whereas the history of leprosy was only of two years' duration

The inguinal lymphatic glands on both sides slightly indurated and the left supra condylar slightly enlarged Urine showed some squamous epithelial cells (?) of bladder

Acid fast bacilli found in smears from nose and excised skin nodules

Diagnosis - Early mixed leptosy

Treitment - Received 15 injections of William's leptoline at weekly intervals the earlier injections being of 2 cc and gradually increased to 4 cc Februle reaction was very slight, the temperature only once using to 100° and seldom above 99°. The weight at first increased by 6lbs, probably due to the better diet received in hospital, but subsequently declined and was practical ly the same as on admission at time of discharge

Condition on Discharge - Practically unaltered so, unless the treatment is supposed to have stayed the progress of the disease the patient was not benefitted

Case No 2 - Name Betawan, caste Chamain, 2, aged 28 years

Duration of Disease -6 of 7 years
Symptoms on Admission - Ulcer "due to burn" (??) on middle of back of right forearm 2" x 2", doubtful diminution of sensibility to pain on back of right foot, failure to differentiate between hot and cold objects on skin of limbs generally, the dermal pigment was partially atrophied in a patch 2" × 1½" between shoulder blades and over large areas of the lower chest and There was looseness and loss of elasticity of the skin of both hands, ie, partial atrophy There was a superficial ulcer of the mucous membrane covering the right middle turbinate bone

Slight thickening of right ulnar nerve present There were large leucome of both cornee The right supra condylar lymphatic gland was enlarged, probably owing to the presence of the above noted ulcer

The 3rd and 4th toes of the left foot had undergone

"leprous amputation"

Leprosy bacilli were not found in nasal smears

Diagnosis - Early case of nerve leptosy

Treatment and Progress -Treatment was continued for 153 days during which 21 injections of William's lepioline, each of 1 cc, were given The injections were given at weekly intervals except on one occasion when the drug was not available and a fortnight Intermittent fever occurred throughout the treatment, the temperature occasionally rising to over 103°, though seldom over 101°

Condition on Termination of Treatment - the ulcer on the forearm had healed Loss of pain sensation as before, sensibility to heat impressions less than before, the areas of atrophied pigment much smaller and less intense than before. The masal ulcer had healed. The right ulnar nerve no longer thickened. The condition of the eyes was unchanged. The right supra condy lar gland was no longer palpable. The patient had gained two pounds in weight. The other symptoms noted at the commencement of treatment were unablested at the commencement of treatment were unaltered and no new symptoms had made their appearance

Result of Treatment -Real improvement was manifest in the healing of the nasal ulcer and that of the forearm and in the much more normal appearance of the skin On the other hand, the loss of sensibility to heat had increased

Case No 3 -Parbatti, Chamaiin, Q, aged 28 years

Duration of Disease -14 or 15 years

Symptons on Admission -A few small nodules on orehead, cheeks and chin, thin scalp hair and very

scanty eyebrows, superficial ulceration with crust forma tion both sides anterior portion of nasal septum right supra condy lar and both sets of inguinal lymphatic glands were "bulletty"

The last phalanx of the right great toe and the whole of the last phalanx of the 2nd left toe had respectively undergone "leprous" amputation. The patient was six

months pregnant

Leprosy bacıllı were found ın nasal smears Diagnosis — Early case of nodular leprosy

Progress and Treatment -The patient was treated with William's leproline for 153 days She received doses of lcc at weekly intervals, except on two occasions when no vaccine was available and again for four weeks at the time of her confinement. Only a very mild neaction was produced, the temperature seldom rising above 99° and never above 101° She lost 21bs in weight during the treatment, but this may have been due to her confinement

Condition on Termination of Treatment -The nodules on the face were distinctly more numerous than before There was an ulcer on the tip of the 2nd left toe, also distinct loss of painful sensibility and of heat sensation on the backs of both feet, all of which were distinct changes for the worse. The nasal ulceration had extended and increased in depth on the septum and the right middle and left lower turbinate bones had become involved On the other hand, the induration and

enlargement of the lymphatic glands had disappeared Summary - Progressive deterioration in nearly all the

lesions

Case No 4 -Upasin, caste Telin, ♀, aged 38 years

Duration of Disease -8 of 9 years
State of Admission -Loss of painful and heat sensa tion back of light hand and forearm and outer sulface left leg and foot Scalp hair thin, eyebrows almost absent, eyelashes scanty The nails of six fingers and absent, eyelashes scanty The nails of six fingers and four toes were attrophic and of two toes had completely disappeared There was a large bulla on the antero-external aspect of left index finger The skin in general and that of the face, hand and feet in particular was atrophic There was extensive ulceration with crust formation on both sides of the nasal septum near the antenor nares The left ulnar nerve was thickened The left supra-condylar gland was enlarged but not indurated. The second and third phalanges of the 3rd, 4th and 5th toes of the left foot had undergone leprous amputation

Acid fast bacilli were found in nasal smears. Diagnosis —Well established nerve leprosy

Treatment and Progress -The patient was treated with William's leproline for 153 days receiving 16 injections, of icc each at weekly intervals except on six occasions, when the vaccine was not available. She gained one pound in weight whilst under treatment

The febrile reaction was of a moderate type, the temperature infrequently using above 100° and seldom ovei 101° The fever was of an intermittent type

Condition on Discharge - The area over which loss of painful and heat sensation was present was markedly increased, involving practically all the surface of all four Areas of atrophied skin pigment were now present about the shoulders, whereas the pigmentation had before been normal

The nasal ulceration had increased, the lower and middle turbinate bones on both sides being now involved as well as the area of the septum above described

The patellal tendon reflexes were no longer obtainable, the thickening of the left ulnar nerve was no longer detectable, but this may be considered as an improve-ment or degeneration according as it was due to regression of inflammation or atrophy of nerve fibres The enlargement of the left supra condylar gland had disappeared and the bullous areas on the left forefinger had healed, these two phenomena probably standing to each other as cause and effect. The terminal phalanx of the right little finger was in process of amputation,

Summary -Altogether the patient's condition was distinctly worse, the increase in the severity of the majority of the symptoms being very marked

Case No 7 - Smundin, Pankin, 2, aged 22 years

Duration of Disease - About 5 years

Symptoms on Admission -Loss of painful sensation on back of night foot only The skin pigment was partially atrophied in numerous patches on the chest

There was an "ainhun" like constriction of the 3rd phalanx of the 2nd toe of the right foot

Acid fast bacilli were found in nasal smears

Diagnosis - Early case of nerve leprosy
Progress and Treatment - This patient's treatment lasted 153 days during which she received 20 injections of William's leproline, each of one cc at intervals of one week, with the exception that the first two injections were of Rost's lepioline and of 30 minims each, moreover what should have been the 8th injection was omitted, the drug not being available The febrile reaction was of moderate severity and intermittent type, the temperature never using above 100° patient lost I pound in weight whilst under treatment

Condition on Discharge - Ulcers were present on the

tips of the right foreinger and left ring finger

There was loss of heat sensition over the back of the right hand, the skin pigment was partially atrophied over a much larger area than at the beginning of treatment.

The other symptoms were unchanged

Remarks - Distinct deterioration in the patient's condition occurred during treatment

Case No 9 - Ghaitri, Native Xtian, 2, aged 35

Duration of Disease -- 20 years

Symptoms on Admission -Numerous nodules on face, large ulcer on right great toe, eyebrows all but absent, eyelashes thin, four finger nails and all too nails partially atrophied, skin of fingers much swollen and that of shins atrophied

Palate exhibited numerous lepromata and the tonsils the same, together with ulceration. In the nosc there was much alceration with crust formation about the anterior portion of the septum and anterior naies

The left inguinal and femoral glands were slightly enlarged

Acid fast bacilli were found in nasal sniears Dugnosis - Well developed nodular leprosy

pounds in weight during treatment

Progress and Treatment—Duration 153 days, 15 injections each of 1 c c of William's lepioline, except the two first which were of 30 minims of Rost's lepioline Injections at weekly intervals, except that what should have been the 8th and 12th were omitted, vaccine not being available also the 14th, 15th, 16th, 17th and 22nd, abscesses having developed at the seat of one of the previous injections. The febrile reaction was of intermittent type and moderate severity, the temperature never rising above 101° The patient lost 24

Condition on Discharge -The nodules on the face as on admission or worse, loss of painful sensation marked on back of hands, loss of heat sensation on backs of hands, feet, backs of forearms and shins Nails of aix fingers, instead of four, as on admission, now affected Patches of diminished pigmentation right side back of chest

The inguinal glands markedly enlarged, that is, glandular enlargement worse The ulcer on the right great toe had healed

Remarks - All the original symptoms had become aggravated, except that the ulcer had healed and signs of nervous involvement had occurred, the case, origi nally a purely nodular one, shewing symptoms of both types after treatment

Case No 10 -Bodhin, Native Xtian, Q, aged 35 Duration of Disease -6 or 7 years,

Symptoms on Admission - Very numerous nodules all over lower face and dorsum of right foot, numerous ulcers, on ulnar side of both hands and left little finger, hypertrophy of sebaceous glands of nose, eyeblows absent, eyelashes very scanty, scalp hair very thin, nails of three toes atrophic, skin of fingers swollen

Tongue and palate covered by lepromata, extensive superficial ulceration of latter, uvula destroyed Anterior nares much contracted and much crust forma tion just inside them Epiglottis ulcerated

The supra condylar inguinal and femoral glands on both sides were enlarged and indurated, probably due to coexistent scabies Inflammatory edema of both

Acid fast bacilli found in nasal smears and in

smears from ulcer on right hypothenar eminence

Progress and Treatment - Duration of treatment 153 days, during which she received 18 injections, each of ic c of William's leproline at weekly intervals, except that four injections were omitted owing to vaccine not being available The patient gained & pound in weight during treatment The februle reaction was mild, the temperature seldom rising above 100° and not very often above 99°

The type of fever was intermittent.

Condition on Discharge —There were distinctly fewer nodules in the skin of the face and right foot, and all the ulcers had healed

Painful and heat sensation was absent over practically the whole of the legs and aims, whereas the existence of any anasthesia at the time of the begin

ning of treatment had been very doubtful

The nail of the right middle tinger had become atrophic The lepromatous patches on the hard palate had been replaced by scar tissue, but the soft palate was almost totally destroyed. The stenosis of the auterior nares was so great that examination of the nasal cavities was impracticable. There was distinct thicken cavities was impracticable ing of the right ulnar nerve

The inguinal glands were no longer palpable

Inflammatory edema of lower legs and backs of feet

unchanged

Remarks -The nodular lessons had undoubtedly improved, being scantier or replaced by scar tissue, but, on the other hand, distinct signs of extensive involve ment of the peripheral nerves had appeared

Case No 11.-Ghasin, ?, Raotin, aged 30 years

Duration of Disease - About 14 years

Symptoms on Admission -There were anoremen nodules on the nose, hips and chin, a few on the forehead and cheeks and the ears much infiltrited. The scalp hair was rather thin and ey obrows almost absent, and all the toe nails, except those of the great toes, parnally atrophied

A single large leptoma covered the middle 12" of the alveolar processes of the upper jaws and the anterior 13" of the palate There was ulceration of the left side of the cartilagmous septum of the nose and the mucus lining of both the anterior naies exhibited lepromata

There was a leproma of the posterior surface of the epiglottis. The left patellar tendou reflex was unobtainable. The right inguital lymphatic glands were "bulletty"

Acid fast bacilli were found in the nasal smears

Diagnosis -Early case of nodular leprosy

Progress and Treatment - Treatment extended over 153 days, during which 20 injections, each of 1 cc of William's leproline were given The injections were at weekly intervals, except on two occasions when no vaccine was available

The februle reaction was of intermittent type and of mild degree in the earlier and later stages of treatment, being most intense during the middle period of treatment when the temperature frequently reached 101°.

The patient put on two pounds in weight during

treatment

D	Signs of Renal Disease	Amputa tion due to Leprosy	Lepromatous Affections of Lymphatic Glands	Affection of Cornea	Case Number.
	P (Pyelitis)	A	P	∫ P•	1
cally	Practi			<b>[</b> }	
Not	A	թ	P	} P*	2
		$L_{\mathfrak{d}}$	P	J bi	
	A	P	P	ς A	3
		р	A	A S	,
	A	P	P	ſΑ	4
		Р	P	₹ A	*
	A	A	•	ſ A	7
		A	A	Ì A	•
	l	A	P	ς A	9
	ĺ	A	Ьa	A	,
	A	A	,	ſΑ.	10
		A	,	) A	10
	A	A	P	S A	11
		A	P	) A	
	A	A	P	<b>5</b> A	12
		A	A	(A)	
	A	A	A	S A	13
		A	A	l A	
	A	P	<sup>9</sup> Scabies	ς A	14
		P	A	A	
	A	A	A	{ A	16
		A	A	A	

# Synopsis of Symptoms, etc.

sease of restes.	Loss of Sexual Power,	Other Co existent Disease	Presence of Bacillus Lepræ	Diagnosis as to clinical variety of Leprosy present.	Gain or Loss of Weight in lb	
Λ no change	A	Py elitis	l,	Early case of mixed leprosy	Nil	
applicable	A A	A A	A }	Early case of nerveleprosy	P2	
,	A	A	P	Early case of nodular leprosy	A2 {	Loss possibly due to differ ance in weight 3 morths
,	Λ	A	P }	Well established nerve leprosy	P1	before and after delivery
,	A	A Scrbies	P	Early nerve leprosy	A1	
•	A A A	Recovered from	P }	Well developed nodular leprosy developing nervous lesions	A2 <u>1</u>	
•	A A	Scabies As before	P }	Well developed nodular leprosy but developed nerve lesions whilst undergoing treatment,	₽ţ	
**	9	A A	P	Early case of nodular leprosy	P2	
,,	,	A	P	Early case of nerve leprosy	<b>P</b> 6	
,,		A	$\left \begin{array}{c} P \end{array}\right $	Early case of nerve leprosy	P7	
,	A	Scables A	P	Well marked case of mixed type	P3‡	
	,	A	P }	Early nerve leptosy	A1	

Condition on discharge - The nodules of the face had The left patellar tendon reflex, decreased in number

previously unobtainable, was obtained

The condition of the nose was rather worse than before treatment. There was some loss of painful sensation on the backs of the feet and loss of heat sensa tion in the same places and partial loss on the backs of the hands, whereas there had been no loss of painful sensation before treatment

The inguinal glands of both sides were now "bulletty"

The other symptoms were unaltered

Remaris - Nodular lesions were distinctly improved, but signs of involvement of the peripheral nerves appeared under treatment.

Case No 12 - Indiamati, 2 Patail, aged 20 years

Duration of Disease -One year

There was a large imperfectly healed ulcer on the back of the left foot which was auæsthetic to heat The eyebrows were very scanty and eyelashes thin Atrophic changes were present in the skin of the hands and shins

There was superficial ulceration on both sides of the

nasal septum

The right ulnar nerve was slightly thickened upper concatenate glands on the right side were enlarg ed and indurated

Acid fast bacilli were found in the nasal smears Diagnosis — Early case of anæsthetic leprosy

Progress and Treatment - Treatment lasted for 153 days, during which patient received 20 injections, each of 1 cc of William's leproline at weekly intervals ex cept on two occasions when vaccine was not available

Febrile reaction was intermittent in type and mild in degree, the temperature seldom rising above 100° and

only twice above 101°

The patient gained 6 pounds in weight during treat-

Condition on Discharge - A few nodules had appeared on the chin and one at each commissure of the lips

Heat sensation was distinctly delayed on the backs of the hands and feet

All the toe nails of the left foot presented atrophic The ulceration of the nasal septum was worse than before, and the inferior turbinate bones of each side were now affected There was much crust formation

On the other hand, the following improvements had

occurred

The ulcer on the left foot had healed

The thickening of the right ulnur nerve could no longer be felt

The lymphatic glands of the upper part of the right side of the neck were no longer palpable

Remarks - Taken as a whole the deterioration out weighed the improvement

Case No 13 - Chandramattı, aged 10 years, Telin, Q

Duration of Disease -Probably five years

Condition on Admission -The last phalanges of both

great toes were very badly split and ulcerated.

The skin pigment was much atrophied over the greater part of the back and in numerous small areas of the The right ulnar nerve was thickened chest and trunk Leprosy bacilli were found in nasal smears

Diagnosis - Ently case of unesthetic leprosy

Progress and Treatment - Treatment lasted 153 days, the injections being given at weekly intervals except on two occasions when no vaccine was available injections were given all of William's lepioline, except the two first which were of Rost's Each injection was of 0.58 cc except the two first which were of 1 cc Each injection

The febrile reaction was intermittent in type and mild in degree, the temperature seldom rising above 106°. The patient gained seven pounds in weight during

## CONDITION ON DISCHARGE

Symptoms of Deterioration - The pigment was much more marked in degree and general atrophy of skin in distribution than before treatment

Both ulnar nerves were now thickened

Symptoms of Improvement -The ulceration of the great toes had healed

Summary - Deterioration greater than improvement

Case No 14 -Surja, Raotin, ♀ aged 30 years

Duration - About 10 years

Symptoms on Admission - Many nodules in skin of face and sub maxillary triangles of neck, ears thickened

Open sinus in left axilla

Painful sensation absent on back of right foot and very much delayed on backs of hands and forearms and Heat sensation absent on backs of hands. forearms and feet Eyebrows practically absent and eyelashes scanty Four finger nails were practically absent. The skin of the hands and feet was atrophic and that of both feet much thickened. There was coexistent scabies

There was much ulceration with crust formation on both sides of the anterior portion of the nasal septum

There was marked atrophy of the muscles of the right hypothenar eminence and contracture of the flexor tendons of both little fingers and of the right ring finger, the cervical lymphatic glands of both sides and the right inguinal glands were enlarged and indurated. but this was probably due to the coexistent scables. The last phalanx of the right ring finger had undergone leprous amputation, and there was marked enlargement of the first interphalangeal joint of the left forefinger

There were distinct signs of atheroma and of enlargement of the heart and the liver edge was 3" below the costal edge, but there were no signs of valvular or renal

disease not failure of compensation

There was chronic inflammatory cedema of the feet Acid fast bacilli were found in nasal smears

Diagnosis - Well marked case of 'mixed' leprosy

Progress and Treatment -Treatment lasted for 153 days, during which twenty injections each of 1 cc of William's leproline were given at weekly intervals, except on two occasions when vaccine was not available The febrile reaction was of intermittent type and mild to moderate in degree, the temperature occasionally rising to 101° but not often above 100°

The patient gained 31 pounds in weight during treat

Condition on Discharge -The following were the symptoms which had changed

Deterior atton - Painful and heat sensation were absent on the backs of the feet, hands and forearms and on the

The sebaceous glands of the nose were enlarged There was a large white scar on the back of the left forefinger and hand The ulceration and crust formation in the nose had increased and the anterior nares were markedly stenosed

There was thickening of both ulnar nerves

Improvement - The sinus in the axilla had healed. The enlargement and induration of the inguinal glands had disappeared

Comment -The symptoms of deterioration markedly outweighed those of improvement, and the nodular lesions were unaffected

Case No 16 - Sachmin, Chamarin, Q aged 40 years Duration of Disease -- About five years but statement

Symptoms on Admission — There was a superficial ulcer of the tip of the right thumb and deep fissures in the skin

of both hands The skin of the hands was "glossy" There was loss of pain and heat sensation on backs of forearms, hands, feet and on the toes and shins

The eyebrows were thin

Pigment was partially atrophied in numerous large areas of the skin of the belly and back

Leprosy bacilli were found in nasal smears

Diagnosis — Early nerve leprosy
Progress and Treatment — Treatment lasted 153 days
during which 20 injections, each of 1 cc of William

lepioline, were given at weekly intervals, except on two occasions when vaccine was not available

Februle reaction was intermittent in type and, in the early stages of treatment, severe in degree, the tempera ture sometimes rising to over 103°. In the latter stages of treatment the ranges of temperature was much less but the last injection produced a well marked reaction

#### CONDITION ON DISCHARGE

Deterioration -There was a deep ulcer covering the whole of the radial side of the right thumb, also a super

ficial ulcer of the back of the left forefinger

Improvement — The fissures in the hands had healed, areas of diminished pigmentation were less extensive

and intense on the belly

Summary — Deterioration greater than improvement

Case No 19 -Budla, Kewat, & aged 28 years

Duration of Disease —" Many years"
Symptoms of Admission — A large ulcer on back of right hand over 2nd metacarpal bone, painful sensation was delayed on the back of the right hand Marked diminu tion of heat sensation on the backs of both hands, fore arms and feet

The finger nails of the right hand (exclusive of that of

the thumb) were all more or less atrophic

There were numerous areas of diminished pigmenta-

tion on the chest, neck and face

There was slight ulceration of the right middle turbinate bone and extensive ulceration of the left middle turbinate and of the left side of the anterior portion of the "septum nasi"

There was slight thickening of the epiglottis

Both ulnar nerves were thickened

The right supra condy lar and axillary lymphatic glands

were enlarged but not indurated

The tips of the index, middle and lifth fingers of the right hand and two distal phalanges of the left second toe had undergone "leprous" amputation

Acid fast bacilli were not found in nasal smears

Diagnosis - Early nerve leprosy

Progress and Treatment -Treatment lasted for 153 days, during which the patient received 18 injections of William's leproline at weekly intervals, except that the injections were omitted on four occasions when vaccine was not available Febrile reaction was mild in degree and intermittent in type The evening temperature once rose to 102° but seldom over 101° and usually fluctuated between 100° and 101°

The patient had neither gained nor lost weight on the

conclusion of treatment

#### CONDITION ON DISCHARGE

Deterioration -New ulcers had appeared on the tip of the right little finger and left great toe The eyebrows had become rather thin The knee jerks were no longer The supra-condylar lymphatic glands of obtamable either side was enlarged but not indurated, while the inguinal lymphatic glands of both groins were indurated but not enlarged

Improvement -The old ulcer had healed The pigmentation of the skin of back had become normal

#### ALL THE ULCERS IN THE NASAL CAVITY HAD HEALED

Neither of ulnar nerves were any longer thickened Remarks — The complete healing of the masal ulcers and, to a less extent, the reappearance of the skin pigment in the affected areas of the back were striking phenomena but otherwise any real improvement was doubtful

Case No. 22 - Sahoriam, Chamar, d aged 17 years

Duration of Disease —"Since childhood"

Symptoms on Admission — Numerous nodules on ears, and face The hands and fingers were puffy but not lips and face nodular Complete loss of heat sensation on backs of feet and shins. The sebaceous glands of the nose were atrophied. Eyebrows very thin and eyelashes scanty

The skin of the chest exhibited many small areas of diminished pigmentation Practically the whole interior surface of the mouth was covered with large nodules, of which those situated on the hard palate were break

Both anterior naies were much stenosed owing to inhitration of the mucous membrane but no nasal ulcera-

tion could be seen

Both ulnar and both musculo spual nerves were thickened and the muscles of the hypothenar eminence of the left hand atrophied

The supra-condylar glands on both sides were enlarged

and indurated

Both epididymes were indurated and the body of the left testis one mass of induration

Acid fast bacilli were not found in nasal smears

Diagnosis — Well developed mixed type of leprosy

Progress and Treatment - Patient was under treatment 153 days, during which he received 18 injections, each of 1 cc of William's leproline, at weekly intervals, except on two occasions when the vaccine was not available

Febrile reaction was mild to moderate during the earlier course of treatment but became more severe later, the temperature occasionally rising to 102°. It was of the intermittent type throughout

The weight had increased by  $\frac{1}{2}$  pound only at the end

of treatment

#### CONDITION ON DISCHARGE

Improvement -The nodules in the skin of the face and ears had disappeared

No thickening of the ulnar or musculo spiral nerves

could be felt

Deterioration -Not only the backs of the feet and shins but also the backs of the forearms and hands had now lost heat sensation and painful sensation was also absent over the same areas, whereas there had been no loss of pain sensation in these areas formerly

All the toe nails and those of the left 4th and 5th finger had become strophic Neither knee-jerk was now obtainable The body of the right testis was now ındurated

Remarks - Except that the nodules had disappeared from the face and that the thickening of the ulnar and musculo spiral nerves could not be felt, all the lesions had made steady progress for the worse or were un altered, in other words, deterioration far exceeded im provement

Case No 25 -Gulab, Native Xtian, d 24 years

Duration of Disease -Three years

Symptoms on Admission - Considerable delay in the perception of punful stimuli on the back of the right

Heat sensation much reduced on backs of the hands and forearms, feet and sluns

There was atrophic rhinitis

The light knee jerk was unobtainable and the left knee jerk sluggish, reaction of pupils to light very

sluggish and Romberg's sign present

The right ulnar nerve was markedly thickened The muscles of the thenar and hypo thenar eminences, interosser and lumbricales of both hands were markedly wasted, as were the long flexor tendons of all the digits of the hand except those of the right thumb and 1st and 2nd fingers

There was chronic inflammatory edema of the right Acid fast bacilli were not found in nasal smears

Diagnosis —Well developed nerve leptosy

Progress and Treatment -Treatment lasted 153 days, during which 18 injections, each of 1 cc of William's lepioline at weekly intervals were given, except on two occasions when no vaccine was available

Febrile reaction was moderate degree and intermittent

in type

Patient gained six pounds in weight,

#### CONDITION ON DISCHARGE

Deterioration - Painful sensation was delayed on the backs of both feet

There was distinct atrophy of pigment in large areas

There was a small ulcer on the left side of the anterior portion of the bony part of the nasal septum

Improvement -Nil

Remarks -The symptoms noted at the beginning of treatment were in the same condition at the time of discharge and some new symptoms, as just noted, had appeared

Case No 26 -Mahesh, Maiai, & aged 28 years

Duration of Disease -14 or 15 years

Symptoms on Admission - Painful sensation diminished on the backs of the feet, heat sensation was absent on the same areas and on the lower parts of the legs and diminished on the backs of the hands

There were numerous superficial ulcers both sides of the anterior poition of the nasal septum. Both hands exhibited a slight degree of "main en griffe" due to the wasting of the muscles usually concerned in the production of that condition In both feet the extensor breves were wasted, most markedly on the right side

The meta-tarso phalangeal joint of the light 5th toe was anchylosed

Acid fast bacilli were not found in nasal smears Diagnosis - Well developed nerve leprosy

Progress and Treatment -Treatment lasted for 115 days, during which the patient received 13 injections, each of lcc of William's nastin, each at weekly intervals, except on three occasions when the vaccine was not available

The febrile reaction was mild in degree except from about the 70th to 90th day of treatment during which the daily range sometimes exceeded 5 degrees

The patient lost half a pound in weight during treatment which was discontinued because of the extremely severe crythematous lesions which developed almost all over the skin surface

Condition on Discharge - There were numerous small superficial ulcers on both hands, the left foot and right arm There were also similar ulcers on the back, probably produced by scratching Painful sensation was absent on the backs of the feet and hands and in the areas where heat sensation had formerly only been diminished it was now absolutely lost. The patient diminished it was now absolutely lost. The patient was now an appalling object, the greater part of the surface of the body being covered with desquamating patches which were deeply pigmented. These patches did not appear to be leprotic but due to an infection with some ringworm. The right middle turbinate bone of the nose was now much atrophied

The knee jerks were no longer obtainable

The muscular wasting of the hands and forearms was more marked than before treatment and the "main en griffe " consequently more obvious

There was a large ulcer of the upper quadrant of the right cornea with consequent pannus and congestion of the bulbar conjunctiva

Both epididy mes were indurated

Improvement -Nil

Remarks -The patient was very much worse than before treatment, steady deterioration of practically all the lesions having occurred and new ones having made their appearance

Case No 28 - Bhoslab, Native Christian, o aged 15 14 years

Duration of Disease - Unknown There were numerous nodules on the nose, lips, chin, ears, fingers and toes and a few nodules on the eyebrows and forehead The ears were much enlarged The skin and subcutaneous tissues of the fingers and toes were much thickened

The sebaceous glands of the nose were atrophied There was an ulcer on the outer side of the left foot

The eyebrows and pubic hair were very thin

There were very numerous nodules on the alveolar processes of the maxillae, the soft palate, the fauces and tonsils also a large ulcer on the soft and hard palate Both anterioi nares were very greatly stenosed, particularly the left

The upper part of the larynx above the cords was

much infiltrated

The submaxillary and upper concatenate lymphatic glands on both sides were enlarged and indurated, as were the inguinal and femoral glands of both sides

Acid fast bacilli were found in the nasal smears

Diagnosis - Well marked case of nodular leprosy

Progress and Treatment -Treatment lasted 153 days during which 19 injections, each of 1 cc of William's leproline, were given, at weekly intervals except on two occasions when vaccine was not available.

The patient gained 5 pounds in weight whilst under treatment Febrile reaction was intermittent in type and mild in degree, except during the last month of treatment when the temperature frequently rose to above 101° and occasionally to 102°

#### CONDITION ON DISCHARGE

Improvement - The nodules in the fingers had disappeared and had been replaced by atrophic skin.

The ulcer on the left foot had healed

Deterioration - Painful sensation was absent on the backs of the hands and feet and heat sensation delayed in those areas

Numerous large nodules had appeared on the tongue Both ulnur nerves were distinctly thickened

Remarks - Deterioration was greater than improvement, and signs of involvement of the peripheral nervous system were present after treatment though they had been absent before it

Case No 29 -Sorhai, Chamar, & aged 30 years Duration of Disease -14 or 15 years

Symptoms on Admission -A few nodules on the fore-Heat sensation much diminished on head and nose backs of feet and hands Eyebrows scanty There was extensive ulceration on both sides of the nasal septum, anterior portion of floors of nasal cavities and of the inferior and middle turbinate bones of the right side

The lymphatic glands of the left submaxillary triangle were indurated and that above the right elbow enlarged

but not indurated

Both epididymes and the body of the right testis were ındurated

Acıd fast bacıllı were found ın nasal smears

Diagnosis -Mixed leprosy of moderate severity

Progress and Treatment — Treatment continued over a total period of 124 days during which 11 injections, each of 1 cc of William's lepioline were given On two occasions when vaccine was unavailable treatment was suspended and again discontinued from the 931d day till 122nd day, as the patient developed abscesses at the sites of former injections

Februle reaction was intermittent in type and mild in degree, but the temperature rose occasionally above 102° though usually not much over 99°

The patient gained 8 pounds in weight during treat-

# CONDITION ON DISCHARGE

Improvement -All the nodules in the skin has dis-Heat sensation was normal The left submaxillary lymphatic glands were no longer indurated

Deterioration - Both ulnar nerves were distinctly thickened

The inguinal lymphatic glands of both sides were indurated

Remarks —Improvement was greater than deterioration and the reappearance of sensibility to heat stimuli in the previously insensitive areas and disappearance of the nodules in the skin quite gratifying

Case No 31 -Sukram, Native Christian, of aged 40 years

Duration of Disease -14 or 15 years

Condition on Admission -Nodules were very numerous all over the face, ears and scrotum

There was an ulcer on the back of the right thumb, ulcers on right foreinger, one on right ring finger and one on the inner side of the right forearm

There were numerous scars of healed ulcers of the left hand and fingers

Reaction to painful stimuli was extremely sluggish wherever they were applied, but the intelligence was deficient, and hence there was difficulty in estimating the severity of this symptom

There was no reaction to heat stimuli when applied to backs of feet, hands, forearms and lower legs

The sebaceous glands of the nose were hypertrophied The eyebrows were absent, the eyelashes very scanty and moustache and beard absent

All the finger nails were more or less atrophied and some scars of old ulcers were quite white and devoid of The skin and subcutaneous tissue of the hands and feet was much indurated and thickened and the skin of the general body surface atrophied, wiinkled and

There was a very large perforation of the masal septum, and the walls of the nasal cavities generally were covered with crusts. There was ozena

The upper part of the larynx above the level of the cords was much infiltrated, but the latter could not be

The knee jerks could not be obtained

With the exception of the right inguinal and of the popliteal glands, all the superficial lymphatic glands were enlarged and indurated

The terminal phalanges of the middle and little fingers of the right hand had undergone "leprous" amputation The body of the left testis and both epi-didy mes were distinctly affected

Acid fast bacilli were found in nasal smears

Diagnosis -A case of well developed mixed lepiosy, the nodular lesions predominating

Progress and Treatment - The total period extended over 137 days, during which 14 injections of William's leproline were given, each of 1 cc and at intervals of No injection was performed from the 431d till the 57th day, vaccine not being available, noi igain from the 73rd till the 86th day for the same reason noi from the 87th till the 122nd day as the patient was suffering from an abscess produced by an injection

Febrile reaction was intermittent in type but of rather severe degree, the temperature fairly often rising above 102° The patient suffered from a mild attack of smallpor from the 110th day of treatment for a fortnight He gained 7 pounds in weight during treatment

### CONDITION ON DISCHARGE

Improvement -Nodules very distinctly fewer Enlarge ment and induiation of the superficial lymphatic glands had disappeared except in the case of the right avillary and femoral and left inguinal glands, all of which, though still enlarged, were no longer indurated

Deterioration -Both ulnar nerves were now thickened The terminal phalanges of the right fore and ring fingers had undergone "leprous" amputation since the first examination

Remarks - Improvements outweighed deterioration, though the evidence of the latter, ie, amputation of phalanges was distinct

Case No 32 - Sadhram, Native Christian, of aged

Duration of Disease.—Unknown

Symptoms on Admission —Very numerous nodules all over face, scrotum and penis, enlarged ears, "Leonine"

Large, partially healed, ulcer over the metacarpo phalanged joints of the 1st, 2nd and 3rd left fingers

Heat and painful sensation delayed over backs of hands and feet and lower parts of legs

Sebaceous glands remarkably hypertrophied all ver face Eyebrows lacking, eyelashes very scanty, over face no moustaches or heard, pubic hair all but absent General surface of body harrless

Nails of the 2nd and 3rd left fingers and of the right ring finger atrophic and of right forefingers absent

There was a diffuse mottling, due to partial atrophy of the pigment, of the skin of the trunk and inner aspects of both thighs and calves

There were numerous white scars on the hands and The skin generally was atrophic, inelastic and wrinkled There were nodules, ulceration and contraction of the soft palate, uvula and fauces

There was a very large perforation of the nasal septum with crust formation and ozena

The part of the larynx above the cords were much infiltrated, the vocal cords were nodular but moved well

Both ulnar nerves were thickened

The left eye presented a large anterior staphyloma with a large leproma of the cornea

One of the right axillary glands was enlarged and indurated as were the surra condylar, inguinal and femoral lymphatic glands on both sides

The terminal phalanges of the left fore and ring fingers had undergone "leprous" amputation

The terminal phalanx of the left little finger was partially atrophied, the second phalanx of the left thumb was partially dislocated and atrophied The right forefinger and ring fingers had undergone "leprous amputation" through the 1st and 2nd interphalangeal joints respectively whilst the interphalanged joint of the right middle finger was enlarged and anchylosed The epididymes and bodies of both testes were enlarged and indurated

Acid fast bacilli were found in nasal smears Diagnosis — Well developed mixed leprosy

Progress and Treatment —Treatment continued for 146 days during which 14 injections, each of 1 cc of William's leproline were given Doses were usually given as weekly intervals but were omitted on two occasions when the vaccine was not available and from the 87th till 122nd day because the patient had developed an abscess at the site of the last injection No injection was performed also after the 139th day for the same The febrile reaction was intermittent in type and usually mild or moderate in degree, but in the third month of treatment was fairly severe for a few days, that is to say after the 9th injection

The patient gained I pounds in weight during treat

ment

### CONDITION ON DISCHARGE

Improvement -The old ulcers had healed The ulcers and lepromata in the mouth were all healed and replaced

by scar tissue Painful sensation was better conducted from the

affected areas

Deterioration - A large number of fresh nodules had appeared in the upper part of the skin of the chest new superficial ulcer had appeared on the radial side of the left forefinger

The knee jerks and pupillary reflexes were no longer

obtamable Remarks -The deterioration was greater than the ımprovement

Affection of Cornea	Affections of Lymphatic Glands	tion due	Signs of Repal Disease.	Disease of Testes	Loss of Sexual Power.	
A	A -	A	A	A	A	
A	A	A	1	A		
A	P	Pa	A	P3	A	
A	P	Ps		P <sub>8</sub>		
A	P	A	A	A	A	,
A	P	A	1	A	1	
A	A	A	A	P	A	
P	A	A		P	ĺ	
A	P2	A	<b>A</b>	A	P,	}
A	Pa	A		A		
A	P ]	A	A	P	A	
A	P	A	i	P	1	
A	Pa	P	A.	P2	1	
A	P <sup>1</sup>	P <sup>2</sup>	1	P.	ŧ	
P	P9	P	A ·	P*	,	į
P	P*	P		P*		l
1						
i	1	[,	1	1	1	

# Synopsis of Symptoms, etc

cistence of disease	Presence of Bacillus Lepto in smears	Gain or loss of weight in lb	Diagnosis as to clinical variety of Lepresy present.	Caso Number	
A	A	} Nil	Early nerve leprosy	19	
Λ	Λ	} Pi	Well developed mixed leprosy	22	
ocomotor 1a atro rhini	A	} P6	Well developed nerve leprosy	25	
gworm	A	} På	Ditto ditto	26	
A A	P	} P5 {	Well developed nodulat leptors, developing nerve lesions whilst under treatment	25	
A A	P	} P8	Mixed leprosy of moderate severity	29	
A	P	} P7 {	Mixed leprosy but with nodular symptoms predominating	31	
comotor	P	} P4	Well developed mixed type	32	

# Indian Medical Gazette.

# INFIRMITIES AS SHOWN BY THE CENSUS

In M1 O'Malley's very interesting Report on the Census of Bengal, Bihar and Orissa (1911), there is much of medical interest. We direct, however, special attention to Chapter X, which deals with four great infirmities, viz, insanity, deafmutism, blindness and leprosy

It cannot be expected that such returns are very accurate, for many reasons the truth is not recorded, but the following figures show the total number of persons returned as suffering from the above four infirmities in March 1911—in Bengal, Bihai and Orissa—

Insanity	30,675
Deaf-Mutes	8,549
Blind	97,350
Lepers	56,523

All these figures show considerable increase on those recorded in previous censuses, and this is to be attributed to the higher standard of accuracy obtained at each Census, that it is not more than this is shown by the fact that while the increase in persons so afflicted has been only 5 per cent, the increase in the total population is 7 per cent

Taking insanity first Insanity is most prevalent in North and East Bengal, especially in Chittagong Hill Tracts, Cooch Behar, Jalpaiguri and Chittagong Districts Proportionately the number of insanes has increased with the population and is 35 per 1,00,000 for males and 23 per 1,00,000 for females As might be expected it is most common from the ages of 25 to 35 years, and among woman from 25 to 45 years As pointed out by the late Major Robertson-Milne, IMS  $(I \ M \ G, May 1910)$ , no doubt the proportion among woman would be greater if it were not for the pwda system The majority of lunatics are kept by their friends with more or less discomfort to both parties, and the accommodation in Bengal for lunatics in asylums is about 1,240 only or, say about one twenty-fourth of the whole!

We cannot here reproduce Mr O'Malley's very interesting notes on the types of insanity, the beliefs of the people regarding it or the

strange methods of treatment among the people Deaf-mutism is most prevalent in Sikkim, North Bihai and North Bengal Sikkim has no less than 27 per 10,000 and Champaiun 17 per 10,000. All these districts are north of the Ganges and watered by Himalayan rivers, and in all of them deaf-mutism is associated with a prevalence of goitre and cretimism. The following note is of interest.

"Gotte is also common in Bhutan, and cretinism is found there—Captain Kennedy, ims, who accompanied the Political Officer in Sikkim on a mission to Bhutan in 1909 10, writes that, out of 202 cases treated by him, one in four had gotte, and there were two creting Gotte in Purnea, a centre of deaf-mutism, was noticed as early as 1788 AD, when the author of the Riyazus-Salatin wrote—Tumouis on the throat, in men and women generally, as well as in wild beasts and birds, are common. This is not an exaggerated statement, as dogs, horses and fowls often have thyroid swellings in this and other districts."

Blindness—"This is least common in areas where the climate is humid and the country green," as compared with the fierce glare of wind-driven dusty and dry climates. South Bihar is the worst portion. Blindness is chiefly due to-neglected inflammation, the use of over caustic crude remedies, dust laden hot winds, and to cataract.

The following table shows the number of operations for cataract in the previous ten years —

DISTRICT	Number of operations	Number of blind per 100,000
Calcutta	8,320	73
Patna	4,071	179
Grya	J,997	161
Shahabad	3,406	192
Saran	2,238	116
Murshidabad	1,717	111
24 Parganas	1,556	52
Champaran	1,368	81
Muzaffarpuı	1,021	80

Leprosy —We quote the following —

"Leprosy is unusually prevalent in Bengal, Bihar and Orissa owing to two leper centres, viz, the four inland districts of Bankura, Burdwan, Birbhum and Manbhum, and the three seaboard districts Cuttack, Balasore and Puri, which between them contain 12,605 lepers or over one-third of the total number. The disease is most rife in the four districts first named, where there is an average of 16 lepers per 10,000 of the population. The

greatest intensity is reached in Binkina with a ratio of 23 per 10,000, this district is, indeed, the blackest leper spot in the whole of India. In the Orissa districts the proportion is 10 per 10,000, and the disease is evenly diffused through all the three districts. Elsewhere it is most common in the Sonthal Pargaras (which adjoins the leper districts of Birbhum, Burdwan and Manbhum) and in the district of Gaya, the number of lepers in the latter district is slightly swellen by immigrants, the town of Gaya being a sacred place of pilgrimage to which lepers are attracted in the hope of charity from pilgrims

There is a definite geographical distribution of leprosy. The lower delta included in Central and East Bengal, which has a humid climate and a soil composed mainly of recent alluvium is most immune. The whole of the north of the two Provinces is also in a favourable position, though there are two exceptions, viz, the State of Cooch Behar and the district of Jalpaiguri in the submontane country known as the Tarar. South Bihar and the Chota Nagpur Plateau, with a directimate, we more exposed to the ravages of the disease, while it is rife in the country to the south and south east of the Plateau."

There has been, however, a general decline in the number of lepers ( $5\frac{1}{2}$  per cent )

After quoting the rotten-fish theory of Mi Jonathan Hutchison, IRCS, Mi O'Malley comments as follows —

"M1 Hutchison's theory is not confirmed by the results of the census over the areas where leprosy 19 most prevalent. In Bankura, in particular, which is the worst leper centre in either Province, the consumption of bidly cured fish is extremely rate other hand, it is common among the Nepalese races, who fulfil the conditions necessary according to Mi Hutchison, for (1) the fish they eat is badly cured, (2) it is eaten very largely, (3) it is in a state of partial decomposition, and (4) it is imported from distant places In every bazar frequented by the Nepalese such badly cured fish may be seen Its condition will be sufficiently described by a quotation from Mr Inglis, an old planter of North Bihar 'Large quantities of dired fish are sent to Nepal, and exchanged for rice and other grains, or horns, hides and blankets. The fish drying is done very simply in the sun It is generally left till it is half putrid and taints the an for miles The sweltering, half-rotting mass, packed in filthy bags, and slung on pomes or bullocks, is sent over the frontier to some village bazai in Nepal The track of a consignment of this hornble filth can be recognized from very far The perfame hovers on the road, and as you are nding up and get the first sniff of the putrid odour, you know at once that the Nepalese market is being recruited by a fresh accession of very stale fish. If the taste is at all equal to the smell, the lankest witches' broth ever brewed in a recking cauldron would probably be preferable. The localities where the Nepalese are found in greatest strength have little leprosy, viz, Darjeeling, where the proportion of male lepers per 100,000 is 45, and, Sikkim, where it falls to 16 figures for Nepalese castes, moreover, show that the

incidence of lepiosy is very low, out of 35,000 persons belonging to different Nepalese castes in Sikkim only 6 are lepers"

We commend this valuable census report to the notice of our readers

# THE LAST OF OUR LUCKNOW DEFENCE VETERANS

SURGEON-MAJOR HENRY MARTINEAU GREENHOW. Bengal Medical Service, retired, died at Esher. Surrey, on 25th November 1912, aged 83 was born on 5th September 1829, educated at Newcastle and at University College, London, took the M R C S in 1853, and subsequently the F R C S both of London and Edinburgh, in 1859, and entered the I M S as Assistant-20th January 1854 He Surgeon on promoted to Surgeon by Brevet, for his services in the Mutiny, from 7th September 1858, became Surgeon in ordinary course on 1st January 1866, and Surgeon-Major on 1st July 1873, retning on 20th August 1876 After his retirement Di Greenhow tried his hand at literature, and was the author of several novels of Anglo-Indian life, Brenda's Experiment, The Tower of Quilyan, The Bow of Fate, The Emperor's Design, and Leila's Lovers

Dr Greenhow served in the Indian Mutiny, with the 12th Oudh Irregular Cavalry, and took part in the memorable defence of Lucknow He was mentioned in the Despatch, dated 25th September 1857, of Brigadier Inglis, commanding the Lucknow garrison, for untiling industry, extreme devotion, and great skill, also in Bengal G O of 8th December 1857, and in the London Gazette of 16th January 1858 He received the Mutiny medal with two clasps, furlough for eighteen months counting as service, and in addition was credited with one year's extra service for pension, as one of the garrison of Lucknow

Di Gieenhow was the last survivor of the medical officers who shared in the defence of Lucknow The other medical officers mentioned in the Despatch of Brigadier Inglis were Surgeon William Brydon, 71st Native Infantry, the sole survivor of the Kabul massacre, who was severely wounded, being shot through the loins while seated at dinner in Mr Gubbins' house, on 21st July 1857, Surgeon John Campbell, of the 7th Light cavalry, Surgeon George Mathieson Ogilvie, Sanitary Commissioner, Assistant-Surgeon

Boyd, 32nd Foot, Assistant-Surgeon Joseph Fayrer, Civil Surgeon, Assistant-Surgeon Samuel Bowen Partiidge, 2nd Oudh Irregulai Cavalry, Assistant-Surgeon Robert Bird, Bengal Artillery, and Assistant-Surgeon Edmund Darby, who died of wounds on 27th October 1857 Surgeon John Bannatyne Macdonald also took part in the defence, and died of cholera in the Residency on 8th August Boyd was an officer of the A M D Ogilvie of the Bombay Service, all the others belonged to the Bengal Medical Service

Brydon, Campbell and Ogilvie received the C B, Fayrer, Partridge, Bird and Greenhow were specially promoted Brevet Surgeons Fayrer was also appointed after the Mutiny to the Chan of Surgery in Calcutta, and Bird received the Civil Surgeoncy of Howiah, then one of the most lucrative appointments in Bengal

# Current Topics

#### THE NASTIN TREATMENT OF LEPROSY

That we have not yet got what the public call a "cuie" for leprosy must be admitted, but the recent work on this disease shows that in a vaccine like that of Rost or Williams, or in Nastin or some such similar remedy the long-looked-for cure may be discovered

One of the most complete discussions of the value of Nastin appears in a report submitted to Government by Colonel G F A Hairis, CSI, IRCP, himself a well-known clinician. In a letter forwarding reports on the use of Nastin by Major J W D Megaw, IMS, and Capt F A Barnardo, IMS, Colonel Hairis has clearly and impartially summoned up the value of this drug

He quotes the following opinion of Major Megaw, which seems to us to have considerable foundation. It is as follows—

That most patients who have been put on the "Nastm" treatment feel much better to begin with but, that later on the majority become disappointed, and cease to believe in it. Major Megaw is inclined to believe that the "influence of suggestion" is a factor of some importance in bringing about the initial favour able results, i.e., the patients have heard or read about the occasionally successful effect in leprosy of the "Nastm" treatment, and, as they wish and hope to receive similar benefit from a trial in their own persons, it may be that "the appetite and general health respond to the stimularing influence of hope," and that therefore "there is nothing extraordinary in thinking it possible, that a leper who has been under the impression that he is suffering from an incurable disease, should undergo a marked improvement in health if he comes to entertain hopes of recovery" Further, he thinks "that this improvement in general health should react favourably on the local lesions is not only possible but even highly probable, and hence one would not be surprised to find benefit resulting from a course of treatment even with

an mert substance, provided that the patients believed

that it was doing them good"

That in no case has "Nastin" produced a cure, and not even a greater improvement than may be seen in other cases apart from any specific treatment. In fact he has not observed in his cases any convincing evidence of any specific effect by "Nastin"

That though it is a costly and rather painful form of treatment, it appears to be safe and practically free from ill-effects, and therefore could be used for such patients in a leper institution who wished to submit to it, but, that on account of the first reason, it would not be justifiable to use it on a large scale in a public institution. Major Megaw further states that actual observation and inference strongly support the view that the lighter forms of leprosy tend to become airested apart from any special line of treatment, whilst even in the severe forms there may be "remarkable remissions," though these unfortunately are in most cases only temporary

Capt Bainardo tiled the remedy for a period of four months on six leprosy cases and his views are summarised in the following extract —

As Captain Barnardo could only conduct experiments for four months, he is not able to give a very definite opinion on the ments or dements of the treatment by "Nastin," nevertheless he states his opinion that the extremely striking effects which were noticed, convinced him that more prolonged trials would be followed by certain benefit He had no difficulty in obtaining volunteers from amongst the immates of long standing Those who had only recently developed leprosy were at first quite unwilling, but after two months all were desirous of puticipating in the new treatment, showing that the inmates themselves were able to admit improvement under the new method, though they were in difficulties how to express the actual degree of benefit obtained Some of the principles experimented on showed a marked general reaction after the injections of "Nastin," and after this general re action had taken place any improvenent which was taking place seemed to cease. The patients on whom "Nastin" was being tried increased in weight under the treatment, but it would appear that they were also allowed to have & seer of extra milk while the treatment was being carried out, and this rather vitiates any conclusion one might otherwise be tempted to draw Captain Bainaido thinks that both the "Leonine" expression as well as any nasal obstruction that existed before coming under treatment, lessened to some extent under treatment, and that the claw hands appeared to relax

We are disposed to agree with Col Hairs that further trials are not to be recommended at the present time, and the following extract given by Col Harris shows that even Prof Deycke himself has found it necessary to try another method of using this remedy —

Messis Kalle & Co, of Biebrich Rhein, have recently informed me that, according to Dr Deycke's most recent observations, an immunisation against "Nastin" may occur if it is applied without intervals for a long period. For this reason Frofe sor Deycke now recommends that the "Nastin" treatment should be given in a chronic intermittent form, i.e., injected for about three months, then there is an interval lasting for at least two months, there the "Nastin" is begun again and continued for three months, and so on, with graduated intervals and spread over a long time. I asked the above firm whether they could not make a reduction in the cost of "Nastin," as the price now charged was almost prohibitive of its use on anything like a large scale. In their reply they state that they cannot reduce the price "generally," but might be tempted

to do so if they received "important orders from Government or other hospitals," when they could supply it in larger quantities and much cheaper packing. They also offered to put a certain quantity at my disposal free of cost if further experimental trials were proposed.

#### THE BEDBUG

In view of the danger of the cimer lectularius we quote the following note on the bedbug by Dr W C Rocker, of the U S Public Health Service (Reports, No 46, dated 15th November 1912)

The body of the bedbug is flat, and consists of a headpiece, a thorax which is divided into three parts and
an abdomen, which is divided into eight parts. It is
covered with short, sharp harrs and coarse bristles.
On either side upon the front of the head is an antenna,
which consists of four parts, these are organs of touch
Just behind them are the eyes. On the lower surface,
near the hind legs, are a pair of glands for the purpose
of secreting a fluid which gives to the insect its charac
teristic, pungent, disagreeable odour. This fluid was
originally used by the bedbug for the purpose of discouraging its enemies, particularly birds.

The biting apparatus of this parasite is quite elaborate, and consists of several parts. In Liting, the bug anchors itself to the skin with a couple of hooks called mandibles, and then inserts the maxille, which are shaped like two gutters, the concave surfaces of which look toward each other, and when placed together form a tube. This is used to extract blood from the victim, and also for the purpose of putting saliva into the wound. It is in this way that the bedbug may

The bedbug is a canny insect. It thrives best in duty, old houses, in the cracks and crevices of wooden beds, or underneath loose wall paper, and at night it comes out in search of food. It is not particularly active in winter, sometimes going into hibernation. Normally it feeds upon human blood, but lacking this it will live upon decaying wood or the dust in floor media.

It is noctuinal in its habits, and during the day remains hidden away in some dark, quiet place. It is particularly active in its search for food. To illustrate this may be quoted the story of the ingenious traveller who, in order to keep bedbugs out of his bed, set the logs of the bedstrad in pans of water, whereupon the bedbugs climbed the walls, got out on the ceiling over the bed, and dropped down upon the victim. In order to the walls, are beautiful.

The eggs are somewhat rounded, white objects, and are laid in collections in crevices or other suitable places. In about a week or ten days after they are laid the eggs hatch out as little worms, called larve, these are yellowish white in colour at first, but later become almost brown. They feed and then go into a resting state, from which they emerge as pupe, they then shed their skins five times, and at last become full grown adults. The length of time which this takes varies with warmth and food-supply from 7 to 11 weeks. They are extremely prolific, and may lay several batches.

of eggs in a season

Bedbugs are hard to get rid of, once they have found lodgment in the house. The first thing to do is to endeavour to discover their place of concealment and to destroy it. This may mean that the paper may have to be taken from the walls, or if this be not practicable it should be thoroughly pasted down in the places where it has become loosened. Benzine and kerosene may be injected behind wainscoting or applied to floor cracks. Oil of turpentine, corrosive sublimate, or boiling hot water may be used for the purpose of destroying both the adults and the eggs.

None of the insect powders are particularly effective Funigation by burning sulphur in the proportion of 2 pounds to the 1,000 cubic feet of air space after closing all the cracks through which the gas might escape is efficacious. The sulphur should be burned in an iron pot which is set upon bricks resting in a tub of water. In this way, the danger of setting fire to the premises is obviated. The gas should be allowed to remain in the funigated room for from 4 to 5 hours. Hydro cyunc acid gas is of course very efficient, but it should always be borne in mind that this is a very dangerous and highly poisonous agent. One way to produce it is to place in an ordinary granite or earther vessel, common commercial sulphuric acid and then after having made sure that there will be no further cause to enter the room, to drop into the acid a thick paper bag containing potassium cyanide. Then get out of the room quickly, close the door tightly and seal up any cracks around it with paste and paper. Great caution should be used in entering the room again, and it must be thoroughly aired before occupation. This method of fumigation should be applied only by experts.

The bedbug has two enemies, the ordinary cockroach and the little red house ant It is rather questionable whether it is wise to introduce these insects into a house for the purpose of destroying bedbugs

DR W E DEEKS of the Canal Zone, Panama, has an interesting article (J A M A, October 26) on a six-day fever which he thinks may be identical with the seven-day fever. He differentiates it from malaria and from influenza, but does not mention dengue

Wr are glad to publish the following Notification of promotion for gallantry in the field —

THE KING has been graciously pleased to approve of the following promotions in the Army, in recognition of the services of the undermentioned officers on the occasions of the attacks made upon a detachment of the 39th King George's Own Central India Horse, near Kazarun, in Persia, in December 1911 Dated 29th August 1912—

#### BRLVET

Major Halhed Brodrick Budwood, Indian Army, to be Lieutenant-Colonel

Captain William Thomas McCowen, Indian Medical Service, to be Major

The Tropical Diseases Bureau at the Imperial Institute, S. W. London, publishes a Tropical Veterinary Bulletin, the first number appeared, dated 31st October. It is to be published at a subscription of 10s annuals for 4 quarterly numbers. The first number is of the same thorough and complete character as the other Bulletins issued by the Bureau, and deals with all the current literature of Phoplasmosis, Anaplasmosis, and Trypanosomiasis.

THE summary by Capt F P MacKie, IMS, of recent work on sleeping sickness, is very well done and in a few pages gives an admirable account or

recent investigations into this formidable African It is excellently illustrated

THE first number of the Tropical Diseases Bulletin (dated 15th November 1912), and published by Messrs. Baillière, Tindall & Cox is an excellent compilation of current literature on Tropical Diseases (subscription 21s per annum, This issue deals with kala-azar, post free) malarıa, blackwater fever, relapsıng fever, and sleeping sickness It will prove invaluable to workers in the tropics, as the articles are admirably condensed

SIR WM. LEISHMAN, FRS, RAMC, has an interesting article in Transactions of Soc of Tropical Medicine (November 1912) on blackwater fever and puts forth the theory that it is due to a Chlamydozoa, a minute ultramicroscopic organism capable of passing through the pores of very finely grained filters and associated with what are vaguely called "cell-inclusions" The whole paper is worth reading

Owing to pressure of space we are obliged to print several newly received and valuable papers in small type, rather than keep them over to a later issue

# Reviews.

The growth of groups in the Animal Kingdom—By Captain R. E LLOYD, IMS Longmans, Green & Co Price 5/.

THE author, in this book, details his view that the sole origin of new species of animals is to be found in the frequent occurrence, among an otherwise stable race, of abnormal individuals or "sports," which possess the power of transmitting their peculiarity to their offspring The main argument is based on his research among the rats of India (previously published in the Records of the Indian Museum, Vol III, 1909), and on a memon by M1 Towers on the potatoebeetle of the United States (Publications of the Cainegie Institute, Washington, 1906)

The occurrence of small isolated groups of animals, differing in one or two characters only from the parent stock, has long been known to us, these groups are regarded by some as representing true species, others consider them to be merely varieties, and Capt Lloyd shews that such groups may arise from individual "sports" by inter-breeding, and further, that similar sports and groups may arise from the same parent stock in varying localities and at different times.

The reviewer has not been able definitely to decide whether Capt Lloyd regards these small and often local collections of animals as varieties or as true species, for in his preface he states that they "are not considered to be equivalent to species, they are referred to as family groups," whereas on page 9 he puts forward the view that 'these so-called varietal groups with their one special character cannot be regarded as different from a species." From the general tiend of his argument, however, it would appear that the latter is the correct interpretation of

It is, therefore, unfortunate that in the groups of rats and beetles, to which he draws attention, the distinguishing features, which serve to separate them from the parent stock, are for the most part differences of mere colouration and size-characters which are notoriously variable throughout the animal kingdom, and which except by some entomologists and "mammalogists," are not usually accepted as being per se It is still more unfortunate of specific value that he has introduced the example of the fish Malthopsis in support of his argument, for in this case it is perfectly obvious to the reviewer, after a careful comparison and study of Capt Lloyd's own specimens, that he was dealing with two similar yet absolutely distinct species, the first of these M lutea was described by Col. Alcock, and the second, M triangularis, by Capt Lloyd himself, though, for some unexplained reason, he subsequently rescuided his These two species correspond with his two groups of "disorder" and "order" respectively, and differ in several other characters besides those he mentions The author divides these specimens into groups of "nairow," "medium" and "broad" according to the proportions of length to breadth, but it should be iemembered that deductions based on the measurements of so few individuals-twentytwo in all—are of little value and his conclusion that the whole, collection forms an example of a polymorphic species cannot be accepted.

The whole of the last chapter is loosely written and the author attempts to ridicule and discredit the theory of natural selection by the coming of cheap phrases, for example "evolution is the arrival of novelties into the world" (p 171) and "fitness is not a reality in itself, it is only a term used to express the fact of survival" (p 180) The attempt at logical deduction on page 182 is not satisfactory effort to disprove the theory of natural selection, Capt Lloyd is without the support of the author of the Mutation Theory, which he desires to substitute for it, for De Viies in his introduction to "species and varieties, their origin by Mutation" explicitly states "My work claims to be in full accord with the principles laid down by Daiwin"

The author is an enthusiast and has perhaps allowed his enthusiasm to override his better

judgment, apart from this, however, the book contains a mass of information and observations that were collected together during his rat survey of India, his facts are exceedingly valuable and deserve to be better known and appreciated by Zoologists who are engaged in taxonomic and other biological investigations

Deformities including Diseases of the Bones and Joints—By A H Tubbi, us Lond, frc.s Eng. Second Edition Two volumes Illustrated by 70 plates and over 1,000 figures Price 45s net Messis Macmillan & Co, Ld, St Martin's Street, London

This book although classified as a second edition is really a new one as it has been practically entirely re-written. The author, contrary to the usual English custom, has included all the diseases of the bones and joints.

What strikes one most of all at the first glance at the book is the care and thoroughness with which the subject has been treated. This is evinced not alone by the letter press but also by the very large number of illustrations and references, one may safely say that no deformity however rare has been omitted

Volume I deals mainly with the affections which are considered to be in the orthopædic surgeon's province, at the end of the book injuries and diseases of muscles, tendon sheaths, etc, are considered

It is difficult to select any particular chapter for criticism, but those on congenital dislocation of the hip, scoliosis and coxa vara are particularly good

Volume II is concerned with tuberculous diseases of the bones and joints, the main portion deals with this disease as it affects the spine and hip

The question of treatment of spinal abscess is fully discussed and includes the discussion of aspiration, aspiration plus injection of various chemicals, incision, etc., etc.

The author emphasises the value of treatment in these chronic and tedrous cases away from large towns, with this every one will agree. The value of vaccination in cases where a sinus has formed is discussed, and also treatment by injection of Beck's bismuth paste. The author has had successful results with the latter treatment, but rather emphasises the possible occurrence of bismuth poisoning, he prefers a paste composed of white wax, soft parafin and vaseline.

Infective diseases of the bones and joints are next considered. There is one statement to which objection must be taken, the author after saying that a number of infectious diseases are complicated by inflammatory joint diseases gives a list in which "many forms of malaria" are included, in a footnote to this paragraph a case of arthritis following Malta fever is quoted. Considering that it is now many years since the organisms of Malta fever and malaria were

discovered, this statement should not be allowed to stand in this form

The remainder of the book contains chapters on arthritis deformans, this is practical and well worth reading, loose bodies, new growths, etc, etc, and the final section deals with paralytic deformities

The author may be congratulated on his book, it shows not only a large practical knowledge of his subject but also an exhaustive acquaintance with the literature thereof, it can be thoroughly recommended

The Surgical Clinics — By John B Murphy, M D Number 4 W B Saunders Company, Philadelphia and London

This number is of the same standard of excellence as the preceding ones. The chief subjects treated are cases of ankylosis of various joints, nephro-pyeloplasty, angrophlebitis, transplantation of bone and various cases of carcinoma

An addition has been made in this number by including one of Di Muiphy's clinics for senior students, this particular one deals with fractures and is well worth reading

Infectious Diseases in Schools—By H G
ARMSTRONG and J M FORTESCUE BRICKDALE
Bristol John Wright and Sons, 1912 Price
3s net

This is a very useful book and has been written for and is being issued by the Association of Preparatory Schools. The book is written mainly for masters of schools, and the clinical picture is chiefly dealt with. There is also an excellent chapter by Mr. Dayne on infectious eye diseases and on ringworm by Dr. Aldersmith. The authors are respectively medical officers to Wellington and Clifton Colleges. The book deals in a clear and accurate way with the recognition and differentiation of all the chief diseases of youth, and includes cerebio-spinal, meningitis and epidemic poliomy elitis.

The chaper on school epidemiology is full of interesting facts and there is a useful glossary

We can recommend the book strongly, and especially to those of our readers who have boys or guls at home at a public school

Scientific Memoirs No 54, Philaematomyia Insignis—By CAPF F. W CRAGG, MD, I.MS., No 55 The structure of Hamatopota pluvialis. By CAPF F W. CRAGG, IMS Calcutta Superintendent, Government Printing

There are two valuable but highly technical descriptions. The first is a study of the sucking apparatus of a small brown fly found throughout the oriental region and of a genus closely allied to Musca. It is a very common blood sucking fly of cattle in Madras. The second study by Capt Cragg is of the Hamatopota pluvialis, a gadfly or cleg of the family of Tabanidae. It attacks man, cattle or horses indifferently

Scientific Memoirs No 56 Malaria in the Andamans—By Major S R. Christophers, MB, IMS Calcutta Superintendent, Govein ment Printing Price 14 annas

This is another of Major Christopher's valuable studies on malaria

As most of our readers will have received copies of this report, we need do little more than record the fact that it is the anopheline Nsm ludlows which seems to be responsible for the prevalence of malaria at Haddo and in the Female Jail The larvæ breed in brackish water, notably in pools near the embankments, and it is the important carrier in the settlement

From a practical point of view perhaps the most important portion of this Memoris is Major Christopher's pleading for the thorough curing of each case admitted. It is also worth noting that the convicts acquire the malaria in the Andamans, and there is but little infection before arrival, a fact which would appear natural to those who know the amount of care taken in selecting only healthy prisoners for the Andamans.

Pye's Surgical Handicraft.—Edited by W H
CLAYTON-GREENE, FRCS Sixth Edition J
Wright & Sons Price 12s 6d net

How many generations of surgeons have received their first sound notions of the craft from Pye's Handiciaft Twenty-eight years ago Mi W Pye first brought out this book and here it is, in its 6th Edition better than ever To the readers of this Gazette it will suffice to say that the new edition is as complete and trustworthy as ever and certainly covers most of the details and complications of treatment occurring in the practice of the handiciaftsman called a Surgeon The book is splendidly illustrated, 329 figures and 11 plates an invaluable manual and can strongly recommended to the Junior Surgeon and to senior students The new edition makes a handsome volume

W G. PORTER, MB, BSC, FRCS. Ed Messis John Wright & Sons, Ld Pilce 7s 6d, net

THE object of the writer, in producing this book, has been to provide the practitioner and senior student with a single volume of medium size, embracing sufficient information on the diseases of the throat, nose, and ear to be of value in practice. We congratulate the author on the success he has achieved. Written in an easy and concise style, the book is quite free from "padding" of any sort, while at the same time it is equally free from the objectionable features of books written purely to enable candidates to cram for examinations.

Each section opens with chapters on methods of examination, general semiology and therapeutics. This is followed by a full description of all the various conditions found in these

negions The descriptions are concise, but leave out no essentials, and should enable anyone to make a full and accurate diagnosis. In treatment a hard-and-fast line is drawn, indicating where the practitioner should call in the aid of a specialist, and for that reason only the operations which can be performed by the general practitioner are described in detail, the remainder having only their main principles outlined

The illustrations are excellent, forty-four being coloured drawings of laryngeal, nasal and aural conditions. No drawings of instruments are given because as the author says, instrument catalogues are usually available. Similarly the customary anatomical descriptions are omitted as everyone possesses a text-book of anatomy.

The result is that we are presented with a very moderate sized book which answers the requirements of the practitioner better than many of the larger volumes which have been presented to the profession in recent years. We do not think a better book has been written for the requirements of ordinary everyday practice.

Diseases of the Naso pharynx—By Chas A. Adair Dighton, MB, FRC.S, Ed Ballière, Tindall & Cox Price 10s 6d net

This is intended as an" introduction and possibly a help" to the use of the naso-pharyngoscope of Holmes. It is a good deal more than that, for it really includes a very complete account of the diseases of the naso-pharynx as investigated by this instrument. This pharyngoscope is constructed on the principle of the cystoscope, being passed through the inferior meature. Judged by the illustrations it gives the best view yet obtainable of the naso-pharynx. The posterior illinoscopic mirror is, indeed, described as an instrument of the past, and as such requiring only to be mentioned.

Roughly a third of the book is devoted to a full description of the examination of the ear, nose and pharynx. The description is good but in a monograph on a very special region,

such as this, is out of place

At the same time the pharyngoscope is not described in detail. Nothing is said about its optical constitution, methods of sterilising, of the various sources of electric current, and their management. The account of the anatomy and development might with advantage have been extended. When, however, we come to the actual subject-matter of the book, there is much that is new and of interest.

The chapter on adenoid is the best we have read anywhere, although his method of operating under the guidance of the eye, by means of the pharyngoscope, must make the operation an unduly prolonged one. To wait patiently between each bite of the forceps for the hæmorihage to stop must certainly prove trying to the unfortunate anæsthetist.

Trauma as a factor in the causation of diseases of the eustachian tube is emphasized by the author, the commonest form of trauma in these regions being unskilful and septic adenoid operations and the passage of the eustachian Instances of both are given

Concerning suppurative otitis media, whether acute or chronic, the author holds that, in 90 per cent of cases, it is caused and kept up by an infection extending to the tympanum from the naso-pharynx by way of the eustachian His treatment is based on this and his views are clear, definite and well worth

perusing

The main points are treatment of the eustachian tube, and attention to diamage of the For the latter most importance is attached to the position of the patient, and this is ensured by a splint of the author's own pattern. When this line of treatment fails Heath's mastord operation is advocated, and we are given a full account of this operation are afraid, however, that Heath's operation is only to be leaint by personal observation

The book is extremely interesting and marks a distinct advance in our knowledge of diseases in this area. The description of the ordinary methods of examination of the nose and ear It gives the impression might well be left out that the writer had not found his subject big enough to fill an allotted number of pages

### The Statistics of Puerperal Fever and Allied Infectious Diseases -By Gro Grddes, M.D. John W Right & Sons Price 6/-, pp 119

This small book contains a mass of information on the subject culled from many sources An interesting and worthy effort to discover the source and say the blame for puerperal sepsis in the United Kingdom Geddes concludes that the general practitioner who must necessarily attend a large number of accidents and suppurating wounds is the to blame in that puerperal is highest in manufacturing districts and lowest ın agrıcultural areas. He makes also a plea that the practice of midwives should be under strict official supervision, which is of interest in view of the undoubted fact that many of these women, neglect or forget, any principle of asepsis they may have learned

This book makes dull reading but would 1epay perusal by health officers in particular

in this country

# Indian Civil Veterinary Department Memoirs, No 3 - Thacker, Spink & Co, Calcutta

THIS Memon consists of a report of the large amount of research work done in the Imperial Bacteriological Laboratory at Muktesar, U P, and is written by Major J D E Holmes, MA,

Ir consists of five parts and deals with such important diseases as suira, rinderpest, hæmoiihagic septicæmia and anthiax.

The staff of the Laboratory is unfortunately very limited, consist of the Director, an Assistant Bacteriologist and a Physiological Chemist The amount of work done is very large, no less than 10 lac of doses of underpest anti-serum were issued. The report is a record of scientific work well done.

Papers on Psycho-analysis —By Ernest Jones, MD, MRC.P London Baillière, Tindall and Cox, 1913 Pp xv + 432Price, 10s 6d net

Most of our readers have heard of Psychoanalysis-too many perhaps have seen it condemned as a means of treatment of cases of psycho-neurosis, on the ground of its probing into matters "best left undiscussed" That there are, however, of the highest importance, being far-reaching in their manifestations, and giving rise to effects that mould the workings of the human mind, no one who reads this work carefully and with an open mind is likely to deny

Ernest Jones was one of the first in the English speaking countries to take up the study of Freud's work That he is a master of exposition will be clear to all who read what he has here written, and we think that one could not have a better introduction to the subject, which described in Fieud's ipsissima verba is a very

difficult one to epitomise

We would recommend all to have this work on their shelves, far from it may be learnt what psycho-analysis is, and how powerful an aid we have in it for the treatment of psycho-neurotics whose name is legion, pace the self-sufficient exponents of dietary therapeutics for what is oupliemistically called "nervous break down"

The Prognosis and Treatment of Diseases of the Heart.—By R O Moon, M.A., MD, FRCP London Longmans Green & Co, 1912 Pp xu

In this little work Moon sets forth his knowledge of how to estimate the chances of a fairly useful and comfortable life that a patient who presents symptoms of heart disease may have, and how best to treat such a case

We note with satisfaction that of digitalis he writes "its administration should always be somewhat exceptional in antic cases" Perhaps it would have been safer had he forbidden its

administration altogether in such cases

Here in India heart disease only somewhat raiely comes under the observation of the physician; but when it does he will find a tuistworthy guide to prognosis in this book.

Aids to Gynecology -By S JERVOIS AARONS London Baillière, Tindall & Cox. Fifth Edition F'cap 8vo 2s. Cd net, cloth, 2s net, paper Pp 11+124. Four Illustrations.

This is one of the best books of an excellent series. It is complete and up-to-date and indeed ın a mai vellous i ésumé of gynæcology vided always the student uses the larger textbooks such an Ard as this must be invaluable before an examination.

# SPECIAL ARTICLE

### PAPPATACI FEVER

WE synopsize the following account of this disease which appeared in the Bulletin (Vol II, July 1912) of the Yellow Fever Bureau It is by Dr Harold Seidelin

Synonyms—Three-days' fever, Sandfly fever, Phlebotomus fever, Sommerfieber, Sommerinfluenza, Hundskrankheit, Soldatenfieber, Endemischer Magencatarrh, Febbie dei tre giorni, Mal della secca, Febbie estiva

Definition—This disease is a benign fever of short

Definition—This disease is a being fever of short duration, produced by an unknown microbe which is transmitted by a Sandfly, Phlebotomus pappatassi

There are many allusions to it of earlier and later date, Pick describe it as a clinical entity in 1886, and Taussig in 1905 associated it with the blood-sucking insect Phebotomus pappatasii, and Doeri and a Commission in 1908 proved the mode of transmission. The results of Doerr have been confirmed by Lt-Col Birt in Malta

#### GEOGRAPHICAL DISTRIBUTION

Many parts of Italy, Istria, Dalmatia, Herzegovina, "Balkans," Asia Minor, Crete, Egypt, Sicily, Malia, Tripoli, possibly in the Soudan and certainly in many parts of India

Etiology—No specific microbe has been found, so fai, in sandfly fever, though morphological and cultural investigations, in particular on the blood, have been carried out by various observers. There is reason to believe that the microbe must be extremely small, as it has never been observed in the blood, and because the serum has been proved, by Doerr and others, to remain infectious after passing through bacterial filters, which in previous experiments retained the Bacillus typhosus and the Micrococcus meliters. The blood has been found infectious during the first day of the disease, whilst experiments with blood obtained after forty hours have given negative results. The positive results obtained in this disease are quite conclusive, as they have been conducted not only on the spot where it is endemic, but also far away from the endemic areas, namely, in Vienna (Doerr), and in Loudon (Birt), that is, in places where the disease has never been observed

The only animal which has so far proved susceptible to infection with Pappataci fever is a small monkey, which was infected by Tedeschi and Napolitani

As the flies have proved infectious after seven days, but not at an earlier date, the virus may be supposed to undergo a development before it can be again transmitted. If it is so, we have to deal here with a true host, probably the definite host, whilst the human host would have to be considered intermediate. The pathogenic organism must, in this case, possess a well defined life cycle similar, perhaps, to that of the malarial parasites, and there is, consequently, strong reason to believe that it belongs to the protozoa

Some authors have suggested that Pappataci fever may be identical with dengue, but it would seem more probable that it should be classified in a group together with this disease and yellow fever

The transmitter—The Phlebotomus pappatasii (Sand-fly) belongs to the family of Psychodidæ order Diptera The best description has been given by Giassi, and his observations have been confirmed and extended by Doerr, Newstead and others

The Pappriaci fly is a small insect of, at most, 2 mm length. Its thorax shows a sharp dorsal curvature, and this, together with the attitude of the wings, which are directed upwards when the insect is resting, gives it a characteristic aspect. The head is small, with large black eyes. The hairy antennæ are much longer than the proboscis.

The eggs are less than I mm long, and may adhere to each other, but without forming clumps. The larva measure from 2 to 5 mm, and are somewhat transparent, of a duty whitish colour. The pupe are of about the same size, and through their body-wall the anatomical details of the imago may be recognized.

Owing to its small size, its yellowish colour and its rapid movements, the Pappataci fly is difficult to detect and to capture. It produces no characteristic sound, when flying, as most mosquitoes do. It attacks at night-time only, from the entrance of complete darkness until early morning. Only the females suck blood.

The susceptibility to the bites of Pappataci flies seems to vary considerably according to the individual, foreigners, in particular, suffer much more than natives

Hands and feet generally show more numerous bites than face and trunk, even when all parts of the body are equally exposed. The marks left by the bites may vary from small, almost invisible red dots to somewhat large, papular infiltrations, the latter are prone to secondary infection with pyogenic microbes, thus, pustules and ulcerations may form

The development of Pappataci flies is not known in all its details. The eggs were, for a long time, believed to develop in water, but Grassi has found them only in dirty cells and moist damp places. Grassi considers that 'latrines should be considered suspicious."

The same author concludes that the eggs never hibernate, as he always saw them develop in a few days also in autumn. All observers are agreed, that the adult insects always die out before the winter, so that it would seem that the continuation of the species is assured exclusively by the hibernation of the larvo. This is a point of some interest, and will be referred to later. Grassi and others have only been able to find very few larvo or none at all, and it is, therefore, still a point of discussion, where the principal breeding places of the Pappataci are to be found, a matter of great importance. The suggestion of Grassi, which has been adopted by Doeir, is that the latrines especially should be considered suspicious

Phlebotomi have been found not only in Italy and the above-mentioned Austrian territories, but also in India and in various parts of Africa and America

Epidemiology and General Puthology—The places where this disease is met with, though very numerous, seem to be rather limited, probably owing to the peculiar distribution of the Phlebotomus Many authors state that it is principally observed where there is a great humidity, but, on the other hand, it has been called 'mal della secca,' because it prevailed during the dry This may be explained, however, when it is remembered that the name referred to was given to the disease in a district where the reno canal dried up during the summer months, and its moist bottom maj well have been a habitat for the flies. But until a more exact knowledge of the biology of the insect is obtained, a clear understanding of the epidemiological facts cannot be expected. The fever is observed principally during the summer months, June, July and August The investigators find great difficulty in explaining how the time between two outbreaks is bindged over, as the adult Pappataci do not survive during the winter months, and a relapse is never seen after a long interval Doerr is of opinion that there is no other possibility than to accept the transmission of the virus from the Pappataci females to their progeny, which then start the infection during the following summer

The ordinary way of transmission, at any rate, is by means of the same adult insect which has sucked infected blood, as it has been repeatedly demonstrated. As the blood seems to retain the infecting agent during a short period only, comparatively little opportunity would appear to be given to the flies to infect themselves, but this is evidently fully made up for by the quite enormous numbers in which they are often observed

It has been taken for granted that the parasites have disappeared from the blood, when this is no more infections. But this is not absolutely certain, as there might possibly persist forms which were not able to develop anew on being transferred to another host, or the blood might contain anti-bodies, which impeded their development. The last possibility should particularly be considered, as it has been shown by Doerr and Russ that the serum of individuals who had recovered from the disease, when added to infective serum may neutralize its infecting power. This neutralizing power has only been demonstrated, after some time—a week to two years—had elapsed since the disease had terminated, but the anti-bodies may be supposed to develop at an earlier time as their formation is probably a slowly progressing process.

Immunity—A single attack of Pappataci fever confeis immunity, at least relative. Relapses are seen due to the same infection, but re-infections are said, by several authors, never to occur. Natives in endemic areas enjoy an almost complete immunity, this is explained as due to a previous attack of the disease, in childhood in analogy with other diseases of a similar nature.

Pathological Anatomy — No specific pathological lesions are known, as the disease is never fatal when uncomplicated. In the few cases in which post-mortem examinations are recorded, secondary infections were responsible for the fatal issue, and the findings corresponded to those observed in septic conditions.

Incubation —This period has been found, by clinical observation and by experiments, to vary from three to

seven days

Symptomatology and Course—Different outbreaks show considerable variations of the symptoms. The character is said to be, as a whole, milder in Malta than in the Austrian territories.

The onset is, as a rule, sudden, with febrile symptoms, headache, and pains, especially in the extremities. Only in exceptional cases are prodromal symptoms observed, as general ill-feeling and uneasiness. The fever is continuous for one or two days, the temperature then begins to go down and reaches the normal height on the third, fourth, or fifth day. The other symptoms subside at about the same time, but a very pronounced general weakness often persists for one or several weeks.

Nervous symptoms are very pronounced Headache is constant and often intense, it is most frequently frontal, but may be occipital. Pains in the back, loins, and lower extremities are likewise present in nearly all cases, and there is often pronounced tenderness of various nerves, particularly the perone, tibialis and intercostales. Excitation is a frequent symptom, and delinium is seen occasionally, as well as vertigo and lipothy my

Muscle pains are very frequent, and their chief localizations are the intercostal and lumbar muscles, and the muscles of the calves. The joints are but seldom affected, they are, in some cases, painful and a slight swelling of the knee-joint has been described as quite exceptional. The periosteum of the tibia has been

painful on pressure in some cases

The eyes are injected, especially the conjunctive consesponding to the lid opening, thus, a seddish band is seen running across the sclera to each side from the

cornea The bulbs are painfus on pressure

In the majority of cases, symptoms from the digestive organs are observed, but they do not appear to be quite constant. There is some diffuse pharying its and tonsillitis. The gums may show a tendency to bleeding, but this is not a constant, or even frequent symptom. Most patients have no appetite during the acute stage. The tongue is mostly coated, white or yellowish, the tip may be clean, in the shape of a triangle with its base directed forwards. Vomiting occurs in about one third of the cases, it is often an initial symptom. Constipation is the rule, whilst the temperature is high, later on, diarrhoca often sets in, sometimes vehement, and the liquid stools may contain blood.

Epistanis is a common symptom. The Iaiynx mucosa may be affected by invasion of the inflammation from the pharynx

The pulse-rate increases with the fever, but may go down before the temperature falls, and in convalescence a pronounced brady cardia is the jule, according to the Austrian Commission, pulse rates about forty have been observed.

Examination of the blood reveals no typical deviation from normal conditions, in either number or morphological characters of the red blood corpuscles

There are no important symptoms from the urmary system. Albumen is but seldom found, and then only during the highly febrile stage.

Various cutaneous eluptions may occur There may be ery thema of a morbilliform or multiform chalacter and a few roseolæ The skin is, in the initial period, dry, but when the temperature is falling and convalescence setting in, there may be profuse sweat.

All these symptoms disappear after a few days, when the temperature becomes normal, but a general weak ness may persist, as mentioned, so that the previous good health is often not restored until two or three weeks after the beginning of the disease. In abortive forms, which are sometimes seen in relapsing cases, the whole duration of the attack does not exceed two days

The prognosis seems to be invariably good, and complete restoration to health may be confidently assured Nervous troubles may persist for a somewhat longer period, for example, in rare cases, neuralgias. The convalescence may also be complicated by neurasthenic phenomena, and a few case of real psychoses have been described, which, however, all eventually recovered

Diagnosis - Until the pathogenic microbe be discovered, the diagnosis must be based on clinical observation, and on the negative results of investigations for the agents of other specific infections. It may be a difficult task to distinguish influenza from Pappataci fever, especially when, in the former disease, catarrhal phenomena are not pronounced Moreover, Doers has found in several cases of Pappataci fever, influenza bacilli in the sputum. It must, therefore, be remem bered that one of the two diseases does not exclude the Special stress should be laid, for the sake of differentiation, on the nervous symptoms which are, as a rule, so prominent in Pappitaci fever Similarly, it may be differentiated from acute gastric and gastro intestinal catarrhs. Acute insolation may begin very much in the same way as Pappataci fever, but the subsequent course will soon clear up the diagnosis differential diagnosis from dengue may undoubtedly be very difficult, although muscle pains prevail in Pappa-The presence taci fever, and articular pains in dengue of the transmitting agent of one of the diseases, with exclusion of that of the other, may also be of some help The discovery of the in establishing the diagnosis specific microbes in the two diseases must be awaited with the greatest interest, this may be expected to supply the final means of settling the diagnosis oi, possibly, of establishing their identity

Treatment—This problem has been carefully investigated by the Austrian observers. No specific treatment exists, but much can be done in the way of alleviating the sufferings of the patient, which may, at times, be very severe. The best results were obtained by the administration of aspirin in the doses of one gramme three times daily, this treatment is said not only to alleviate the pains, but also to render the whole course of the disease somewhat milder.

Patients should stay in bed during the whole course of the disease, and a saline purgative should be given at the onset

The sand fly bites should be treated locally, in order to avoid secondary infection with progenic microbes. For this purpose, painting with functure of rodine has been recommended by Hale

### ANNUAL REPORTS

# ASYLUMS REPORTS, DACCA AND TEZPUR

THE Dacca Asylum now belongs to Bengal and the Tezpui to Assam, but Col. Neil Campbell, CB, CIE, submits the Report dated 9th March 1912 The daily average strength of the lunatics was 533, while it was only 480 in the previous 3-year period

The following note on the medical history

sheets is worth reproducing -

"In my last Thennial Lunatic Asylum Report I represented that the information furnished in the medical history sheets of lunatics was in most cases inadequate and unsatisfactory and that there was no improvement in the preparation of these sheets, although the attention of committing officers was drawn by Government to the necessity of making an exhaus tive enquiry into every case of a lunatic before he is sent to the asylum. This defect having been considered to be due to the imperfect instructions and division of responsibility between the police and the medical officers in regard to the preparation of medical history sheets, the instructions for the writing up of these sheets have been revised and the sheets have also been divided into two."

In 1911 the chief causes of deaths in the Dacca Asylum were cholera (14), tuberculosis (5), dysentery (3) and malarial fever (2) The death rate in this asylum would have been low, ie, 6 37 instead of 11 06, but for the 14 deaths from cholera which broke out in an epidemic form from the 22nd January The first case was a male insane sent from Sylbet who must have contracted the disease on the way. The epidemic lasted throughout February and first few days of March. In all, there were 26 attacks with 14 deaths Major MacLeod, IMS, who took charge of the asylum on the 1st March took prompt measures to stop the epidemic and no fresh case occurred from the 1st March except 2 doubtful cases There was comparatively less fever amongst the inmates of this asylum during 1911 and this was probably due to the prophylactic treatment with quinine which was commenced on the 19th January, twenty-five thousand five grain tabloids having been distributed during the year. The Superintendent, Major E. C. MacLeod, I Ms., is of opinion that quinine regularly administered is not only prophylactic to malaria, but also to some extent to intestinal parasites and in addition acts as a general tonic. The number of deaths from diarrher and dysentery fell from 14 in 1910 to from diarrher and dysentery fell from 14 in 1910 to 4 in 1911 and from exhaustion from mania from 8 to nil Hypodermic injections of hyoscin and morphia were freely used in these cases with excellent results. The chief causes of deaths at Tezpur during 1911 were tubercle of lungs (10), anemia (4), dysentery (2), fever (2), pneumonia (2), and acute mania (2). One lunatic committed suicide by jumping into the asylum well which will soon be protected by a safety elevator Tubercle is gradually spreading amongst the inmates which will soon be protected by a safety elevator Tubercle is gradually spreading amongst the inmates of this asylum, there being 10 deaths from this cause in 1909, 12 in 1910, and 10 in 1911, i.e., a total of 32 against 9 in the previous triennium. There is no accommodation for segregating this class of patients, and moreover the asylum wards are overconded which accommodation for segregating this class of patients, and moreover the asylum wards are overcrowded, which is an important factor in the propagation of this disease. A small temporary tubercle ward has been sanctioned, but the work of construction has not yet been commenced for want of materials. It is however expected it will be erected shortly. In 1910 I drew up a set of rules as to the precautions to be taken to lessen the incidence of tubercle, copies of which were forwarded to the Superintendents of the Asylums for their guidance.

Col Campbell gives the following ratios of deaths per 1,000 of average strength among the lunatics in the different provinces of India in 1911 were as follows —

Central Provinces	56	per mille
Bengal	74	,,
Bombry	87	,,
Punjab	91	,,
Madias	91	"
United Provinces	99	
Eastern Bengal and Assam	105	,,
Buima	114	"
·		**

Overcrowding is one great cause of this extremely high mortality rate in the Presidency of Bengal, and until the Province of Bihar and Orissa has got the long proposed and oft deferred central Lunatic Asylum, no improvement can be expected. Few of the Asylums of India are creditable to the Governments concerned. That they are not far from worse is only due to the continued efforts of the medical officers in charge. Col Campbell writes.

"There was no change in the capacity of the Dacca Asylum during the triennium under report The capacity of this Asylum calculated at 50 superficial feet per patient is for 238 males and 45 females. The maximum number confined in any one night was 262 males and 42 females in 1909, 251 males and 39 females in 1910, and 273 males and 46 females in 1911. There was thus overcrowding throughout the triennium Attempts are being made to make over the harmless lunatics to the care of their friends and relatives, In 1909 the capacity of the Asylum at Tezpui was for 133 males and 33 females, while the maximum number confined in any one night was 200 males and 42 females In 1910 there was accommodation, including solitary cells and hospitals, for 157 males and 33 females and the maximum number confined in any one night was 209 males and 44 females. In 1911 the accommodation was the same as in 1910, the maximum number under confinement having been 199 males and 43 females. There was great overcrowding throughout the triennium. A proposal for a new male ward is under consideration, the plan and estimate for which are in course of preparation. There is a proposal to convert the present female ward of the Tezpur Asylum into a male ward and build a separate female ward on a new This will of course prevent site crowding, but the cost is prohibitive. At present the female ward is separated from the male ward by a bamboo palisading, but as this is not sufficient for the purpose, the construction of a masonry wall between the male and female wards has been administratively sanctioned and the work will be started as soon as funds are allotted by Government"

#### BENGAL

Col. G F A. Hains, CSI, FRCP, IMS, submits the Asylums Report for Bengal as it existed before 1st April 1912

The story is the same, gross overcrowding and its results. The average number of lunatics in the two asylums of Berhampore and Patna and Bhowampore was 937 against the previous 3-year figure of 851.

It is satisfactory to see the total number of readmissions remains low. Col. Harris has the following remarks on the eternal overcrowding, and be it remembered that many lunatics are made over to their friends by the police who

would be far better treated in an asylum but there is no room !"

It is apparent from the leturn that the existing accommodation in our asylums (112, 722 for males, 207 for females, or a total accommodation for 929 insane patients) was insufficient during the year 1911 was more or less overcrowding in all the asylums in that year, and especially so at Berhampore, where at times it was serious in the male division and caused To a certain extent this deficiency will much anxiety be met by the recent orders of Government allowing the conversion of the existing recleation shed hitherto used by lunatics into 5 waids, and by the conversion of the shed hitherto occupied by the keepers into 4 wards altogether 9 new wards have been added meet the overcrowding in 1911 the rules regarding the admission of certain classes of lunatics (viz, only those who were considered to be dangerous or who were friendless and destitute) had to be rigidly enforced At Patna overcrowding in the criminal ward was relieved by the transfer of 6 lunatics to the Berhampore Asylum, this being the only arrangement possible Bhowanipur Asylum was very short of accommodation on the female side, causing a good deal of inconvenience It has been since proposed that some of the existing rooms should be partitioned off to provide the extra accommodation needed"

General remarks—Of recent years the administration of the Bengal lunatic asylums has much improved, and the management of the different asylums during the triennum has been uniformly satisfactory. The lunatics have been well looked after, sympathetically treated, and properly clothed and fed and the Super intendents have done all in their power to alleviate the condition of the unfortunate people committed to their care. All the lunatics are weighed monthly, but those suffering from pulmonary phthisis are weighed fort nightly or oftener. The epileptic and suicidal patients are properly isolated, and the former wear distinctive and indestructible clothing.

I think I may say that greater attention has been paid during the triennium to the dietary of the lunatics and so to arrange that it shall be sufficiently varied, and in sufficient quantity, and to all the minute hygienic details in the asylums. The lunatics have been sufficiently well clothed, and the infirm gang system has been maintained, with great benefit to the weakly and debilitated.

Prophylactic temedies for malaria have been regularly issued in all the asylums during the unhealthy seasons of each year. In order to try to brighten the asylums and keep the lunatics more cheerful and contented, amusements of various kinds have been provided at a cost of Rs. 452 4-6 in 1909 and Rs. 246-2 in 1910 and Rs. 309 4 in 1911. The Superintendent at Berhampore writes—"During the Coronation celebrations the local Committee very kindly gave a grant towards the expenses of a dinner with sweets, etc. This was much appreciated." The local Club at Berhampore also kindly supplied the back numbers of the leading periodicals for the European patients. Some of the well conducted lunatics were allowed in charge of keepers to go outside the asylum walls and for carriage drives.

During 1911 new rules regarding the services of the subordinate staff of the asylums were issued with the sanction of Government, the objects being to secure the enlistment of a better class of men and to prevent them from leaving their posts at will to the detriment of the interests of the asylum. Under the new rules all the members of the subordinate staff of an asylum are required to sign a declaration as to their antecedents. In the cases of keepers, the entries in the declaration form have not only to be verified by the police, but the keepers are also required to furnish a monetary security under an agreement that they will forfeit it, if they

resign their services without giving two months' notice, or if they are found guilty of misdemeanour. The Superintendent of the Berhampore Lunatic Asylum reports that the keepers object very much to the security bond. He states that many men come for enlistment, but as soon as the question of security is mentioned they go away. He recommends that this clause of the new rules should be cancelled. I have asked him to submit the matter separately for reconsideration.

The final decision of Government on the proposed constituction of central Lunatic Asylums at Rauchi for European and Indian insanes, is in abeyance, owing to the constitutional changes. The Dacca Asylum under the new arrangements has been added to the Bengal Presidency, whilst Patna has gone out of it, and has been allotted to the new province of Bihar and Orissa Thus in Bengal there will be three Lunatic Asylums, viz, at Beihampore, Dacca and Bhowanipur The whole question of the provision of increased and better accommodation for lunatics (particularly for Europeans and Anglo Indians) which is much needed, is under the consideration of Government

The Superintendents report that the tell tale timepieces which were supplied to the asylums in 1909 have been very useful. The new Manual of Rules for the management of Lunatic Asylums in Bengal, which was brought into use in 1910, is reported to have been of great help to these officers.

The Government Resolution dated 18th June has the following note which is of interest -

"The conclusion to be drawn from these figures is that while more modern methods of dealing with lunatics have succeeded in reducing the mortality, increased strictness regarding admissions has eliminated the less serious cases of lunacy, and has therefore necessarily reduced the number discharged as cured. The read missions are almost entirely cases of criminal lunatics who had been discharged to stand their trial, and it may be assumed, therefore, that the cures were permanent. But the report seems to show that the present asylum population consists to a very large extent of hopeless cases, and it may be expected in future that the number of cures and deaths combined will not equal the number of admission, the daily average therefore will probably continue to rise

The accommodation in the present Lunatic Asylums provides for 929 persons. It was therefore found absolutely insufficient for the insane population of 1911, and temporary accommodation for 90 more had to be provided The provision of temporary accommodation is an unsatisfactory expedient, and the asylums in the Province (though that at Berhampore was enlarged in 1905) have for some years been condemned as below the standard of modern requirements Plans and estimates amounting to 20 lakhs had been carefully evolved for a first class Central Asylum, where a skilled alienist could apply modern methods of treatment, and it had been decided to locate the Asylum at Ranchi in conjunction with a Central Asylum for European lunatics for the whole of Northern India The reconstitution of the Provinces has rendered necessary a reconsideration of this scheme, and the matter is under correspondence with the Government of Bihar and Orissa But Government is of opinion that a modern asylum should be constructed as soon as possible to contain 1,200 patients and the approved plans allow for a further increase in the accommodation, as, while it may be expected that the number of cutes may increase owing to more scientific methods of treatment, the mortality will probably decrease, and it may be hoped that in the future insanity may be regarded more as a form of disease than as an irremediable infliction, and the relatives of insane persons may wish to have them properly treated at their own expense by a skilled alienist"

Colonel Hairis calls attention to (and the Government Resolution endoises his remarks),

<sup>\*</sup> See Note on Census Report, Bengal, at p 69 above -ED

the great loss the alienist department suffered in the death of Major C Robertson-Milne, IMS, at Berhampore

#### BOMBAY

The Hon'ble Surgeon-General H W Stevenson, CSI, IMS, submits the report for 1911 on the Lunatic Asylums of Bombay Presidency Much has been done during the past three years towards improving and increasing the accommodation in these asylums and the new Central Asylum at Yervada is nearing completion and is expected to be ready by April 1913 daily average strength for the year 1911 was 1,019 as compared with 986 of the previous On this point Surgeon-General Stevenson comments as follows

"The daily average strength in 1911 was 1,019 8 as compared with 986 1 in 1910 and 988 6 in 1909. The mean strength for the triennium under review was 9982

against 951 5 for 1906-1908

The chief cause for the steady increase in the number of patients in the asylums would appear to be the grow ing popularity of these institutions People are begin ning to realize that the mentally afflicted are much better off in an asylum than in their own homes Also, owing perhaps to higher ideas of personal comfort, and probably less leisure to look after them, they are becoming less tolerant of insane persons in their house holds and near neighbourhood. There is no evidence to show that any actual increase of insanity is taking place amongst the general population, though it must be acknowledged that, from lack of reliable information as to its prevalence lutherto, there are no grounds on which a positive opinion can be based"

The health of the asylum inmates is commented upon as follows.

"The number of deaths fell from 130 in 1909 to 126 in 1910 and 89 in 1911. The average mortality, how ever, for these years was high as compared with the previous triennium, namely, 115 against 72 The ratio per cent of deaths to the daily average strength was 87 as compared with 128 in 1910 and 131 in 1909 mean death rate to the daily average strength during the three years 1909—1911 was 115 against 75 in 1906—1908

Diseases of the bowels are very prevalent and the exact cause has not yet been ascertained into this is now going on The situation of the asylum An enquiry has nothing but its proximity to Bombay to recommend It is water-logged in the time of the S W Monsoon and the very heavy rains and continual damp render it a most undesirable place for the treatment of insanes who stand such conditions badly Pneumonia and tuberculosis cause a number of deaths each year and malarıa is very common

Of the 210 deaths which took place at this asylum during the triennium there were 41 from cholera, 44 from diarihoa, 20 from dysentery, 21 from pneumonia, 15 from tubercle of lungs and bowels, 49 from fever and debility and 10 from other causes Of these, 29 deaths occurred among persons who were admitted in a very bad state of health and died within n month of their admission and 25 occurred among persons who were old and weakly

The mean death rate at the other asylums was low as compared with the pierious triennium

As regards the causes of insanity the following remarks are quoted -

"Insanity was ascribed to specific causes in 800 cases or 585 per cent as compared with 756 cases or 557 per cent in 1910 and 745 cases or 550 per cent in 1909,

the mean ratio for the triennium being 564 against 54 2 for 1906-1908

Of the known causes, there were-

				Average		
Physical Moral	1911 684 116	1910 623 133	1909 601 144	1909—1911 636 131	1906—1908 574 133	

Of the physical causes, the use of intoxicating drugs, over indulgence in spirituous liquor, previous attacks, fever, epilepsy, hereditary causes, and mental trouble

accounted for most of the admissions

The cause of insanity could not be ascertained in 567 cases in 1911 against 601 in 1910 and 610 in 1909. the average number of these cases for the triennium being 593 against 599 in the preceding triennium 1906-1908

Great difficulty is experienced in many cases in obtaining any previous history of patients sent to asylums, and consequently the cause assigned for insanity is not always correct There is rather a tendency to attribute msanity to the abuse of drugs and alcohol when these have only been an accessory and not the original or main cause of disease, which remains undiscovered from want of a reliable previous history of the patient"

As regards management Surgeon-General Stevenson writes

"The difficulty still continues in obtaining a suitable class of men for work as warders This increases the work of management, and until the pay and prospects of warders are improved there seems little hope of inducing a better and more intelligent class of men to enter the service"

#### MADRAS

Surgeon-General W B Bannerman, MD, CSI, IMS, submitted the report on Madras asylums for the three years ending 31st December 1911 He writes as follows.

"Asylum population and accommodation-Population-Criminal and civil lunatics -The population of the three asylums, Madias, Vizagapatam and Calicut was at the commencement of each year as follows

1909	054
1910	654
- · · - <del>-</del>	700
1911	
1011	724

The Madias Asylum contained 74 01 per cent of the above numbers in 1909, and 74 and 74 45 in the years 1910 and 1911, respectively Admissions and ie admis sions in the three years under report 1909, 1910 and 1911 numbered 227 (173 males and 54 females), 232 (171 males and 61 females), and 250 (197 males and 53 females), showing a steady increase year after year, the figures for the previous triennium being 225 (166 and 59), 180 (125 and 55) and 225 (176 males and 49 females) paring the two triennial periods there is an increase of 79 in the one under report - probably the outcome of a better appreciation of asylum care. The daily average strength of the asylums was 71394 as compared with 625 14 of the last report, the proportion of female to male inmates being the same, viz, 1 to 28 At the end of the year 1911 there were 757 inmates under treatment, as compared with 724 at the end of 1910 and 700 at the end of 1909

Accommodation —In the Madras Asylum with the new hospital for European females of 20 beds, there is accommodation for 91 European males, and 81 females, and for 434 native males and 108 native females, which is 714 in all The Vizagapatam Asylum can accommodate 79 native males and 17 females and the Colomb Academy (1994). Calicut Asylum (with the rew female ward to accommodate 48 patients), 107 males and 60 females Increased accommodation for females, necessary in Madras and Calicut, and alluded to in the previous triennial

reports, has been supplied (supra) At Madias 573 (426 males and 147 females) was the highest number confined at any one time on the 18th December 1911, at Vizagapatam 76 (59 males and 17 females) on the 21st April 1910 and at Calicut 132 (96 males and 36 females) on the 6th October 1911 Lavatory for European males and another for European females are in process of completion in the Madias Lunatic Asylum

New buildings—At the Madras Asylum in 1909, 17 single 100ms for natives in female enclosure, and four single 100ms for Europeans in the female enclosure were built. The following works which were in process of construction in 1910 were completed in 1911—(a) A new hospital for 20 beds in female enclosure, (b) dining 100m for European female pitients, (c) four single 100ms for Europeans in Male Hospital, (d) sixteen single 100ms for civil natives (male), (e) Recreation Hall, (f) two single 100ms in the criminal enclosure for Europeans, (q) a leper ward of four single 100ms, (h) two observation 100ms for European males, and (i) alterations in Assistant Matron's quarters for accommodating female observation cases. The land to the north of the Institution has not yet been acquired for further extension. At Vizagapatam in 1909 were constructed a latime for the warders' lines, in 1910, (1) a block of six single cells for accommodating insanes under observation, (2) a pucca rest house, and (3) a hospital for females."

On the health of the meanes we may quote the following —

"Statistics of health and treatment of the sick—Sicl ness and its Causes—The average daily sick was 67-86, 53-57, and 64-64 in the three asylums together in the three years 1909, 1910 and 1911 respectively. The mean for the triennium was 62-02—greater by 9 than the last which was 53-06. This increase is due to the health of many new admissions being bad necessitating their immediate admission into the hospital, and to all acute cases of insanity requiring careful nursing and dieting being also admitted. The principal diseases from which inmates suffered were in order of frequency—diseases of the digestive system, including dysentery and diarrhoa, of the nervous system including mania, melancholia, etc., aniemia and debility, tubercular diseases and malarial fever. Coincidental with the increase of dysentery and diarrhoa among the population of the town there were a great many admissions of these diseases among the criminal population at Madras.

Forcible feeding and methods in use—Very seldom resorted to at Vizigapatam and Cahent, but at Madras it is found a necessity. The annual mean number of feedings for the triennium was 1,392. No bad results have accrued, and the method has been found suitable and satisfactory. Nasal feeding is adopted by means of a Jacque's catheter and syphon tubing.

Mortality and its causes—The total number of deaths was 48, 79 and 69 in the three years, or an average of 65 33 per annum (the large number in 1910, includes 12 from cholera in the Madias Asylum)—The average for the previous triennium being 77 67—The chief causes of mortality were (a) tubercle which, as usual, heads the list, 14, 18 and 16 for the three years under report of a total of 39, 64 and 56 respectively in the Madias Asylum (Vizagapatam contributing 0, 1 and 1 of a total of 3, 6 and 6 deaths respectively and Calicut, 0 1 and 3 of a total of 6, 9 and 7 deaths respectively), (b) diseases of the nervous system, and (c) dysentery and catarrhal inflammation of the bowels—The percentage mortality calculated on the daily average strength yields 7 09, 11 06 and 9 19 as compared with 11 87, 16 30 and 9 11 respectively for the previous three years

Epidemics and how they were dealt with—The Vizigapatam and Calicut Asylums were free from epidemics during the three years, and Madras Asylum 11. 1909 and 1911, but in October 1910 a fairly severe outbreak of

cholera occurred. There were 22 cases with 12 deaths, a case mortality of 54 55 per cent—the lowest on record in the Institution I quote in evienso from the report of the Superintendent - Every possible means was taken to check the disease, and all cases were treated in the contagious disease sheds a special staff of servants were entertained for the purpose The method of treatment was that advocated by Major Leonard Rogers, CIE, IMS The cause of the outbreak could not be definitely traced but two factors were believed to have played some important part-"one was the fact that the water of the kitchen well was found to be highly contaminated and contained vibrios in great numbers, and it was possible that the water had been consumed by some of the patients who suffered from cholera-the other was that, when the outbreak occurred, several hundred coolies were employed in the asylum by various Public Works Department contractors, and it was possible that one of them might have conveyed the disease by some means of other, but no sickness could be traced amongst these coolies or their families. In the previous triennium (October 1907) there were 14 deaths, and in the one ending 31st December 1905, 19 attacks with 12 deaths, with a case mortality of 82 35 and 63 16 per cent respectively the former of these the cause was attributed to the conveyance of infection by flies which swaimed considerably at the time

The nursing of the sick is efficiently carried out by a special nursing establishment. The "Superintendent, Madias Asylum, complains bitterly and rightly too, I think, of the pay of matron, nurses, European attendants and inferior staff as being quite insufficient. He has not, owing to this cause, found it an ersy matter to get suitable and efficient substitutes to fill vacancies. I am now in correspondence with him and shall shortly submit proposals in detail."

BOMBAY BACTERIOLOGICAL REPORT (1911)

This was submitted by Major W Glen Liston, CIE, MD, IMS, the Director

We quote several extracts from this very interesting report —

"The table below shows comparative figures of out put in doses of Anti plague Vaccine for the past five years —

1907	1908	1909	1910	1911
620,923	533,315	593,164	62,,693	1,211,170

The output of the vaccine during the past year is a record in the history of the Laboratory. The large increase in the demand for the vaccine tried the resources of the laboratory to its utmost. Work had to be carried on throughout the Christmas and other holidays. All demands for the vaccine were however met with very little additional staff.

During the latter part of the year a number of complaints were received from various quarters regarding the severity of the symptoms, both local and general, which followed inoculation. Even when rigid aseptic precautions were adopted swelling and redness round the site of injection was marked and lasted for three or four days, and the general malaise and fever were more severe than usual. We instituted a very searching inquiry into these complaints. Individual brews were examined as to the length of time that the brew had been incubated and the period which had elapsed between sterilization and actual use. The brews complained about were almost all recent ones, a fact which confirmed our experience in past years.

To avoid unpleasant symptoms in the use of this fresh vaccine, we advised the dose to be reduced from 4 to 3 c c if used within three months of the date marked on the

The protection afforded by the reduced dose was probably less than that produced by the larger dose, but we had to bear in mind the fact that a severe reaction following inoculation always tends to make the operation unpopular

In deciding upon the most suitable dose of vaccine to

use, two points have to be kept in mind

(a) The degree of immunity produced by a given dose, (b) The amount of discomfoit (fever, pain and swell-

ing) produced by that dose

Speaking generally the larger the dose of vaccine given, the greater is the immunity produced, but the size of the dose is limited by the severity of the reaction which follows moculation, for the larger the dose, the more severe the reaction In selecting a suitable dose of vac cine, therefore, care has to be taken to give as large a dose as can be borne without great inconvenience For this reason when fresh or immature vaccine is used a smaller dose has to be administered than when mature vaccino is used "

After describing the work of Capt Taylor, IMS, on rats it is remarked -

"With these data before us we are in a position to gauge approximately the reproductive powers of rats. A single pair produces, say, 6 rats every two months, these young rats are able to produce young ones in tuin in approximately 4 months Mafemales are produced in about equal numbers Males and average, say, one litter of every three produced is des troyed by the parents before they reach maturity. In these circumstances in less than one year the single pair may have multiplied to 50 pairs. If this late of multiplication were continued for a year and a quarter, the number of lats would be very great indeed. As a matter of fact observations in the field show that such rapid multiplication does not actually take place it is probable that overcrowding, destruction by natural enemies, and disease keep down the numbers. There is another very important factor which has to be taken into consideration in making such calculations. It should be remembered that not every pair of rats is The number of rats we experimented with was too small to yield any reliable estimate on this score, but by a somewhat complicated calculation we reckon that somewhere about one pan in every four may be considered to be infertile in the sense that reproduction in these does not go on at the estimated rate of a litter every two months Even making this allowance but taking no account of the effect of disease and destruction by enemies, it does not seem possible to give a lower estimate than that a single pair of rats may multiply to 40 pairs in the course of a year

Experience in the field does not by any means confirm this estimate Difficulties are met with in field work which prevent us making an accurate estimate of the rat infestation of any place. The experience, however, suffices to put us on our guard in making calculation regarding the reproductive power of rits from purely laboratory observations. Sufficient has been learned by these experiments to convince us that lats multiply very rapidly and the important deduction can be drawn that any destructive measures against rats must be very

thorough and very persistent "

There are numerous reports showing the great efficacy of anti-plague inoculation, and we quote in full the following experiences in H H the Nizam's Dominions

"During the past year a very severe epidemic of plague broke out in Hyderabad (Deccan) Lieutenant-Colonel Drake Brockman, I Ms, came to the conclusion that a vigorous moculation campaign would be the only means of checking the epidemic, as evacuation on any large cale was impracticable Inoculation was done on an absolutely unprecedented scale, a striking example of what energy can accomplish Up to date only a few records of results have come in, but these with

Lieutenant Colonel Drake Brockman's permission w publish He writes

'I took every precaution from the first to make it (i.e., inoculation) a success, paying great attention to many little details in order that the records obtained would furnish us with reliable data upon which possibly useful deductions could be made Enclosed I have briefly noted down for your information the details I refer to, and I think that you will agree with me that the whole thing has been thoroughly carried out moculation campaign in this city was started in last September and practically ended in January, a period of about 4 months only, and during that period I was able to moculate over 75,000 human beings, and that too without entertaining any really extra establishment but done with the agencies of my dispensaries and their medical subordinates in charge I think, humanly speaking, that these records could not have been more carefully kept, for the whole campaign was from first to last under my personal direction and supervision, and I never allowed any person to perform the moculation who had not been most thoroughly taught the whole technique of the operation before being allowed to perform it, moreover, I went sometimes 20 miles a day in my motor and constantly visited the places where moculations were being carried on, and beyond one aim much inflamed which was in the case of a European who foolishly played hard tennis directly after being done, I cannot honestly remember any untoward result of the operation out of the whole lot-men, women and children It was a sight worth seeing in the mornings, the crowds of these people hanging about the roads outside these dispensaries awaiting their turn for inoculation "

With reference to the statistics he supplied, he writes in another communication -

"I am also sending you herewith an abstract of figures from these forms which up to date we have had returned to us as verified, which you can rely upon absolutely -

	No of Suboidi nates and other families		Popula tion	Attacks	Denths
Return received from 33 various departments up to 15th Ap ril 1912	6,059 {	Inoculated Unmocu lated	3,071 2,988	47 204	21 204

He remarks -

# Connespondence

THE SHITH OPERATION

To the Editor of "The Indian Medical Gazette"

SIR,—In your November number you publish a "special article" entitled "The Vered Question of the Smith Operation" and say "we here reprint two articles on this subject which have recently appeared and to continue our strict impartiality on the subject we give views of both sides. You proceed to republish a letter of an intensely hostile and personal nature which appeared in the Ophthalmic Record of June 1911. Do you call this recent. This letter is of no scientific importance. You do not republish my reply to this letter from the same Journal of April 1912. Is this what you call strict impartiality. This letter was part of the Kilkelly Smith controversy, what in your special article is made to represent the other side of the question is the republication of an article which has no bearing on the above mentioned letter nor on the Kilkelly Smith controversy. You then finish by saying that "Those interested in the subject will doubtless have read the very interesting review by Major Elliot, I M S, in the Ophthalmoscope of September 1911 on

All living under piecisely similar conditions ""

Di Deirick Vail's little book There again you do not tell your readers that the "little book" was not a little book, but the reprint of an article published in the Lancet clinic of Cincinnati, not purchasable in the market, but only to be had from the writer as a favour It is unusual, I think, to review anything which your readers cannot purchase You do not refer your readers to Dr Vail's and my replies to that review which appeared in the Ophthalmoscope in the current year

Major Elliot's review and replies are composed for the most part of intensely hostile and personal criticism of me apart from the merits and demerits of the operation with due deference. I would invite your attention to the fact that what appears on this subject is divisable into two issues—on the one hand myself personally whether friendly or hostile on the other hand, the scientific aspects of this operation These two issues are mixed up and confused by the opponents of this operation of what interest to science are my personal doings! (They might be of interest, if the writers were honoring me by writing a posthimous biography)

I think it would be in the interests of the Indian Medical

Gazette if the articles and letters copied from other journals were confined to the scientific and practical side of intracap

sular extraction

Yours truly, H SMITH, LIFUT COL, INS

AMRITSAR

[The proof was long in hand and at time of its printing the reply of Lt Col Smith had not been seen Moreover we also published a still longer article landatory of Lt Col Smith's work In this matter we still say that we have only one desire, viz, to lay before our readers an imputial account of the views of ophthalmic surgeons on this interesting and important subject -ED ]

#### BLUE PATCHES ON NEW BORN INFANTS To the Editor of "THE INDIAN MEDICAL GIVETTE"

SIR,—Recently a conrespondent published a note on the above subject and considered these patches, if I remember rightly (I can't put my hand on the copy of the article at

the time of writing) as an interesting point in anthropology I should like to point out these patches were noted by the Census Commissioner of the Punjab eighteen years ago and I have taken some interest in them. These blue patches are I have taken some interest in them. These blue patches are to be seen in the skin of Mongolian infants. Every Chinese, every Roman, Japanese and Malay child is born usually with a dark blue patch of inegular shape in the lower sacral region. The patch may be equally divided on both sides or it may not be laterally disposed. It may be only the size of a shilling or at other times it may be as large as the hand. In addition sometimes there are also other patches on the trunks and limbs but never on the face. They have been in raier cases, I understand, so numerous to cover nearly half the surface of the body. These patches may be likened to a bruise as by a fall. They usually disappear in the first very of life, but sometimes last for several years.

year of life, but sometimes last for several years
Up to a year ago and in little over a year the midwife work
ing under me in Lahore city had 174 cases with such blue
patches Most of the children born in the Lahore city have these patches, and the children of Hindus and Mahommedans are equally affected. There is generally one big patch about the region of the sacrum, though there are sometimes several smaller ones on the lower part of the back. Though she ascribes them to the placenta, in my opinion they cannot be produced by it as, of course, we should expect them also in

Eui opeans

My observations as to their origin are as follows—These patches are due to the effect of pressure on the back of the child due to the method of native (and other oriental) women tying their skirts about the level of the umbilicus. There is usually a knot in front and this may at times change its position—This presses against the lower part back. of the child in utero and is liable to make the part pressed unduly congested and pigmented as a result of the intermit unduly congested and pigmented as a result of the intermit tent pressure destroying delicate vessels in the delicate skin of the child. When one presses the finger on a table or book at first there is anomia, and when the pressure is relieved there is slight hyperomia. In the case of the unborn infant the pressure is probably intermittently (so to speak) sufficient to injure the delicate vessels and probably lead to the extravisation of blood as results in a bruise. It is more commonly prevalent in normal pregnancies, because in normal pregnancies some part of the back is towards the front, and is more likely to be seen about the sacial region because the sacial region is of the back is towards the front, and is more likely to seen about the sacial region because the sacial region is first likely to come under this pressure. Likewise the squatting habits of women in the East may help to produce the other patches on the body according as the child does or does not change its position. In Europeans this patch is not seen simply because European women were coisets which distribute the pressure of the skirts, and if not wearing coisets they usually go in for a loose gown which is kept up from the shoulders. There is no 'squatting' with them but reclin ing on a sofa or couch. This appears to me to be the cause of these patches which are not pathologic and disappear usually in the first. 18 months of the child's life.

At the beginning of this year I desired further information about these patches, and brought the matter before the Punjab Branch of the British Medical Association, but none of those mesent had any experience of them

of those present had any experience of them

A G NEWELL, MD, DPH,

Health Officer, Lahore

[See I M G, August 1912, p 306, for Dr Fink's paper In our Editorial Note (p 324), we showed that Bealz' claim that these marks are a sign of Mongolian blood could not be sustained Dr Newell's theory is of interest Finther correspondence is invited —ED, I M G]

#### FORMALIN AGAINST FLIES

To the Editor of "THF INDIAN MEDICAL GAZETTE"

SIR,—In reply to D P H's query in The Indian Medical Gazette of December 1912, regarding the best way of using formalin in order to kill flies, I found the method of exposing it in shallow plates to be useless. An excellent way is to sprinkle the mixture of formalin, milk and water in tiny An excellent way is to pools of from 1 inch to about I inch in diameter on the floors, shelves, tables, etc, when the flies readily drink it I used this method during the last rains in the jail kifchen here with gient success

RAJKOT, 13th December 1912

Yours faithfully, W M HOUSTON Major, i m s

#### RE BEDBUGS AND THEIR DESTRUCTION, 1912

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,-I am glad to note that Sub Asst Surgeon Satkarı Ginguli after trying turpentine on bedbugs writes his experiences in the October 1912 issue of this your esteemed journal, and passes his glowing opinion on its effectiveness in destroying them. This is as you know what I claimed in my article of the 28th August 1911 in the October 1911 issue of the journal, which was the first article I wrote on the subject

Please allow me to explain fully that I use the medicinal turpentine (spirit), and to prevent evaporation I make it into an emulsion of equal parts of soap suds. Without soap suds an emulsion of equal pairs of sorp such it has not the same effect, owing to the bedbigs having very smooth, and hard backs the turpentine alone runs off, and there can slip away and escape destruction. The they sometimes can slip away and escape destruction. The suds fixes the turpentine to them in a way in which they can never escape with their life

HOOLUNGOORIF, MORIANI PO, ASSAM. 3rd December 1912

Yours, &c, TAFOZOOL HOOSAIN, NATIVE DOCTOR

### THERAPEUTIC NOTICES

#### "ECSOLENT COMPOUNDS"

W1 find we did an unintentional injustice to the Ecsolent Compounds in our issue of November last and therefore quote in full the extract from the British Medical Journal of 21st January 1911 (p. 144)

21st January 1911 (p 144) —

"In the British Medical Journal of February 2nd, 1910, p 136, there appeared a short notice of three pre parations supplied by the Ecolent Compounds (Saracen Buildings, Snow Hill, E C) intended for the treatment of eczema and other skin affectious. These comprise an oint ment, a soap and a dusting powder. The ointment is made with a basis of soft paraffin, and contains zinc oxide, starch boile acid, and resorcin, with small quantities of a number of antiseptic and atomatic substances, the soap shows no free alkali, but is slightly superfatted, and both this and the powder contain some of the aromatic and antiseptic ingledients used in the ointment, while the basis of the powder is tale, with zinc oxide, staich, and boric acid. We expressed the opinion that "from the composition of these preparations they may be expected to prove useful for the pui pose for which they are intended." Practical experience has confirmed this expectation, expressed nearly twelve months ago. We have had the opportunity of satisfying our selves that the ointment is of great value in the treatment of selves that the continent is of great value in the treatment of itching eruptions, especially about the anus and genitals, and the powder has proved an excellent application in cases of troublesome intertugo in the folds under the breasts, on the

abdomen, and elsewhere In addition to our own limited but decidedly favourable experience, we have had submitted to decidedly favourable experience, we have had submitted to his a large body of authentic evidence spontaneously offered by practitioners throughout the country. Then statements refer chiefly to cases of eczema, eighthema, psoriasis, pruritus ani, and various other skin affections. The names and professional position of those who testify to the usefulness of the Ecsolent Compounds are sufficient guarantee of their read faith." good faith"

### TABLOIDS EMETINE IN THE TREATMENT OF AMŒBIC DYSENTERY

(BURROUGHS, WELLCOME & CO)

It may be remembered that in 1858, Surgeon E S Docker, AMS, then stationed in Mauritius, first advocated the use of large doses of recorduna in dysentery, and succeeded in reducing the dysenteric death rate in the island from 10 18% to 2%. The more recent investigations of Major Leonard Reggies are fresh to everyone a mind and have demonstrated Rogers are fresh in everyones mind, and have demonstrated that the salts of emetine are specific in amorbic forms of dysentery, and that, moreover, they can be given with safety without inducing the serious nausea and vomiting chaincter istic of speciculanha. In one case, an amount of emetine corresponding in four weeks to 1,000 gis of specaculanha, was

That specacuanha should have been so suddenly and so dramatically iehabilitated, is one of the surprises of science when we recall that not very many years ago its use on active service was seriously banned by a committee of experts sit officer stationed in the Philippines, formed a fresh starting point Vedder found that fluid extract of specacuanha inhi omeer stricted in the l'imprines, formet a fresh statute point. Vedder found that fluid extract of specacuanha inhibited the growth of dysentes is mucho—later furnishing the observation that hoth cultures of dysenteric smedbewere destroyed by emetine. Upon these facts Rogers served, with keen perception of the practical clinical application of the discovery. "I therefore," he says, "tested the effects of the solutions of emetine on A Histolytica, in dysentesic stools." All the force of Rogers' investigations lies in these last three modes. He found in point of fact, that amends in dysen. All the force of Rogers' investigations lies in these last three words. He found in point of fact, that amobe in dysen teric stools were killed by a dilution of 1 in 10,000 of emetine hydrochloride and rendered inactive even by so high a dilution as 1 in 100,000. Microscopic examination of the dysenteric nicers of an advanced case which ended fatally failed to reveal a single living amoba, after a dosage of 3½ gis in 2½ lave.

days

The keratin coated product of emetine constitutes yet another advance, and has been introduced in order to enable the hydrochloride to be given orally. The keratin coating facilitates the contents of the product reaching the pathogenic areas of the bowel, unimpaired in activity and without interfering with gastric processes 'Tabloid' Emetine Hydrochloride, gi. § keratin coated, is especially suitable for routine treatment in dispensivy and out patient work, since it enables the patient to take the remedy himself.

it enables the patient to take the remedy himself

Issued in bottes of 25

### PERSPIRATION AND TUBERCULOSIS INFECTION

IN a recent important communication to the Paris Acidems of Medicine Professor Poncet detailed the result of experiments regarding the transmission of tuberculous by perspiration. He related how he made a careful examination of experiments regarding the transmission of the contained apports that the related how he made a careful examination of the perspiration and discovered that it contained 42% of tuberculosis microbes. Thus Professor Poncet alleges the danger of contagion from the clothes of persons suffering from tuberculosis is great and therefore all the clothes touched by the patient must be disinfected. Reference has already appeared in these columns to the increasing use of IZAL in up to date laundrie, and in view of Poncet's announcement, the importance of this precaution is emphasised.

MACKIT'S WHITE HORSE WHISKI needs but little advertisement. It is well known and well reputed, and recent analysis shows that it is pure, old high class whisky. The firm has a high reputation for honesty and fair dealing

MP A and M ZIMMERMAN send us accounts of two preparations of their PPLLIDOL and AZODOLEN The former is a light red powder easily soluble, the staining of linen is easily washed out. Azodolen is a combination of Pellidol and Iodolen both are most useful outments

Roche Products by Hoffmann La Roche Chemical Works are well known Their "DIGALEN" is a well known digitals preparation for hot climates as are also Thiol and Thior ol. A new general sedative is called Outlook 'Roche,' a soluble opium derivative, originated by Sahli

P. MFRCE, of Darmstad, send is a beautifully got up and illustrated pamphlet on the history and present condition of their well known chemical works and factories, published in

THE University of Giessin has recently conferred the degree of Doctoi of Medicine on Mr Einst Leitz (Junioi), a partner in the celebrated firm of opticions, Leitz & Co, 18 Bloomsburg Co. London 18, Bloomsbury Sq , London

THE Cambridge University Piess is about to publish a series of volumes dealing with Public Health, under the editorship of Dr G S Graham Smith, of Pembroke College, and Mi J E Purvis, of St John's

C F BOEHRINGER & SOEHNE send us literature and specimens of the Arsenoferratose and a small simple color metric apparatus for estimation of hamoglobin. The local agents are Messrs. Hadenfeldt & Co., Calcutta

ON page 455 of our November issue we omitted to give the name of the makers of SOLUTION D They are R Sumner & Co Ld, Lord Street, Liverpool

# Service Motes

THE NEW YEAR'S HONOUR LIST

The names of the following Medical Officers appear in the Honour's List of 1st January 1913

CIE

LIEUTENANT COLONEL W J BUCHANAN, I MS, Inspector General of Prisons, Bengal, and Editor, Indian Medical

MAJOR W GLEN LISTON IMS, Director of the Paiel Laboratory, Bombay, and well known for his excellent work on Plague and on mosquito malaria

KHAN BAHADUR

HAJI KHAJA MUHAMMAD HUSSAIN, Chief Medical Officer, Bunganepalle State, Madras

RAI BAHADUR

SENIOR SUB ASSISTANT SURGEON SUHALL SINGH, 21st

1st Class Sub Assistant Surgeon Hira Singh, Simla KHAN SAHIB

1st Grade Sub Assistant-Surgeon Cooverji Rustomii

AVARI, Bombay
1ST GRADE MILITARY SUP ASSISTANT SURGEON SARF UDIN, Quetta SUB ASSISTANT SURGEON

MIRZA MUHAMMED BEGG, Bugand

RAI SAHIB SENIOR ASSISTANT SURGEON LALA UMRA RAJA LAL,

Punjab DR BHUBANESWAR PRAMANIK, Senior Assistant Surgeon, Bhagulpur

RAO SARIB

P GOVINDA PILLAI, Sub Assistant Surgeon, Burma Kaisar-i Hinl Medals

(Gold 1st class)

MAJOR H W GRATTAN RAMC, in charge of the Enteric Convalescent Depôt, Naini Tal
DR JOHN A Turner, MD, DPH, the well known Health

Office of Bombay
MAJOR E R ROST, IMS, Civil Surgeon, Rangoon, well
known for his researches on Leprosy
MAJOR E L WARD, IMS, recently Superintendent,
Central Jail, Lihore

(Silver 2nd class)

Sub Assistant Surgeon Makkhan Singh, Cantonment Hospital, Rawal Pindi
MRS ALICE M PENNELL, BSC, MB, of the Frontier

MRS ALICE MAN Medical Mission Miss Lydia Woerner, MD, of American Mission, MISS LYDIA WOERNEP, M.D., of American Mission, Rejamundry, Madras
BABU RAMDHARI SINGH, Medical Practitioner and Vice Chairman, Motihari Municipality

LIEUT -COLONEL WILLIAM OWEN, Bengal Medical Service, LIEUT-COLONEL WILLIAM OWEN, Bengal Medical Service, retired, died at Westein Super Mare, on November 1912 He was born on 21st March 1852, and educated at Trinity College, Dublin, where he took the BA in 1873, and the MB in 1874 He also took the LRCSI in 1873, the LM Rotunda in 1874, and the FRCSI in 1888 He entered the IMS as Surgeon on 31st March 1877, became Surgeon-Major on 31st March 1859 Surgeon-Lt Colonel on 31st March 1897, was placed on the selected list from 25th October 1902, and retired on 24th March 1903 He served in Afghanistan in 1878 80, and was present at the battle of Ahmed Khel, and the action of Arzu, receiving the medal and clasp, and in Egypt in 1882, when he was in the action at Tel el Kebn, and received the medal with clasp, and bionze star. Most of his service, medal with clasp, and bionze star Most of his service, however, was passed in civil employment in Bengal, where he was for some time Deputy Sanitry Commissioner of the Western Bengal Cucle, afterwards Civil Surgeon of Pabna, and finally for several years Principal Assistant to the Opium Agent, Bihar

LIEUTFNANT COIONEL T R MACDONALD, I M S (Ret ) In response to a formal request brought to him by a deputation, Dr. T. R. Macdonald, now of Inverness, visited the Island of Skye this month, in order to receive from the representatives of the parish of Snizoit and South Snizoit and Island of Brye this month, in order to receive from the representatives of the parish of Shizoit and South Shizoit and illuminated address in acknowledgment of the services rendered by him to the islanders. The presentation was made at the United Free Church Manse of Shizoit, where there was a large gathering, headed by the Rev. D. C. Macdonald, of Kilmuir. In acknowledging the address Lieutenant Colonel Macdonald said it was not the first visible token of gratitude and goodwill that he had received from the islanders. They had presented to himself and his wife many gifts at the time of his actual deputine from the island, and these and the address would be the most cherished of his possessions, and of those of his descendants. They would be valued as coming from the people of the "Isle of Mist." to whom they were proud to belong. Di Macdonald was for over twenty years an officer in the Indian Medical Service, and served also in Egypt during the hist Egyptian campaign and the subsequent outbreak of cholera. Returing with the rank of Lieutenaut-Colonel, he devoted himself for a considerable number of years to the service of the Island of Skye, taking up work there as resident medical officer of the Gesto Hospital. During his tennie of this office he initiated and successfully carried through a movement which resulted in the provision of a Chiesal's muse for Surgert and initiated and successfully carried through a movement which resulted in the provision of a Queen's nuise for Snizort and South Snizoit, and in many other medical connections greatly benefited the island. On finally giving up active medical work he took up residence at Inverness -B. M. J., 30th November 1912.

LIEUTENANT COLONFL THOMAS RANKIN MACDONALD was boin on 17th May 1853 Educated at Edinbuigh University, where he took the degrees of M B C.M. in 1879, also taking the L R C S Ed in 1879, and the M R C S in 1880, and entered the I M S as Singeon on 31st Maich 1880. He became Singeon Major on 31st Maich 1892, Surgeon Lt Colonel on 31st Maich 1900, and retried on 20th June 1900. He served in the Egyptian war of 1882, and was present in the action of Tel el Kebir, receiving the Egyptian Middl and the Khedive's bronze star. In the following year, 1883, he was one of the Tel el Kebir, receiving the Egyptian Medal and the Khedive's bronze star. In the following year, 1883, he was one of the eight officers of the Bengal Medical Service deputed for service in Egypt, in the great cholera epidemic of that year Entering civil employment in Bengal in 1855, he served as Civil Surgeon of Mymensingh and then of Backergan; In 1886 he went to Buima as Superintendent of the Rangoon Central Jail After some years he was transferred to the post of Superintendent of the Jabalpur Central Jail In 1893 he returned to Bengal, and, after a short period as post of Superintendent of the Jabaipur Centru Jan In 1893 he returned to Bengal, and, after a short period as Deputy Sautary Commissioner of the Western Circle, was posted as Civil Surgeon of Saran, where he spent six years, moving to Muishidabad shortly before he left India his retirement, he practised for some years at Hawick, and then in the Island of Skye

DEPUTY SURGEON GENERAL JOHN EDWARD MOFFATT, late of the Aimy Medical Department, died at Upper Rathmines, Dublin, on 20th September 1912, aged 86 He qualified as L R C S I in 1850, and subsequently got the degree of M D at McGill University, Montreal He entered the A M D on 14th March 1851, more than sixty years ago, and retried as Deputy Surgeon General, with a step of Honorary rank, and the title of Surgeon General, on 27th September 1882 He served in the Kafir Wai of 1851 53, and received the medal After he had retired from the Aimy, in 1882 he was ordained as curate of Mailebo rough, Ossory, and subsequently for twenty six years held the incumbency of Milltown, Dublin the incumbency of Milltown, Dublin

BRIGADE SURCEON THOMAS STICK VEALF, Bengal Medical Service, lettied, died at Croydon on 1st December 1912 He was born on 25th March 1831, educated at University College, London, took the MRC S in 1854, and the LSA in 1855, and also subsequently in 1872 the MD of LSA in 1855, and also subsequently in 1872 the MD of St Andrews He entered the IMS as Assistant Surgeon on 27th January 1858, became Surgeon on 27th January 1870, and Surgeon Major on 1st July 1873, letting with a step of honorary rank on 22nd February 1885 During the Crimean Wal he served in 1854 55 in the Army Civil Hospital at the Durdanelles He also served in the Indian Mutiny in 1858, in the Bhutan Expedition on the North East Mutiny in 1858, in the Bhutan Expedition on the North East Mrontier of India, in 1865 66, and in the second Afghan Wal in 1879 80, receiving the medal for each campaign, with

a clasp-for the last His whole service was passed in military employment. His last item of service was a rather currous one. He went home in 1884, intending to retire at the end of his furlough. After he had gone to England, it was discovered that he was nine days short of Indian service for pension, and he had to return to India, on the expiration of his furlough, and put in nine days further duty

WE quote the following notice of one of the oldest I M S retired officers, viz, Sir Geo Birdwood from the Statesman of January 5, 1913—
"This has been a week of notable anniversaries, but few

"This has been a week of notable anniversaries, but few of these happy occasions have been of more interest to the public in general and the Anglo Indian community in purticular than the attainment of octogenarian rank by Sir George Birdwood, & C. E., the famous Anglo Indian doctor, scientist and man of rit and letters. Sir George—who has received innumerable congratulations from friends in all parts of the world—was born at Belgaum, Western India, on December 8th, 1832, and joined the Indian Medical Service in 1854. Three years later he took part in the Persian Expedition of 1857, but, with this exception, he remained at Bombay until 1868. He was Professor at the Grant Medical College, founder of the Victoria and Albert Museum, Bombay, designer of the Victoria Gardens, Registrar of the University, and Honorary Secretary of the local Royal Asiatic Society, and his advice was eagerly sought by Sir Buttle Freie and other governors. On his return to this country he at once had an important post offered him in the India Office. Here his knowledge of the manners of life of the people of India and the economic manners of life of the people of India and the economic conditions rendered his services of the utmost utility. It was his book "The Industrial Arts of India," which first awakened this country to a realisation of what India was doing in that way

CAPTAIN J B D HUNTER, I MS, an officiating Agency Surgeon of the 2nd class, is granted privilege leave for three months combined with furlough for seven months, and study leave for eight months, with effect from the 10th December 1912, under Articles 233 and 308 (b) of the Civil Service Regulations and the Regulations prescribed in the Notification by the Government of India in the Army Department, No 31, dated the 13th January 1911

CAPTAIN D HERON, I MS, is appointed to officiate as an Agency Surgeon of the 2nd Class, and is posted as Medical Officer, Seistan Consultte, and evofficio His Britannic Majesty's Vice Consul for Seistan, with effect from the 10th December 1912

LIFUTINANT COLONEL A L DUKE, Indian Medical Service (Bengal), an Agency Surgeon of the 1st Class and Residency Surgeon and Chief Medical Officer in Baluchistan, is granted privilege leave for three months, with effect from the 28th November 1919 the 28th November 1912

Major J N MacLfod, CIE, Indian Medical Service (Bengal), an Agency Surgeon of the 2nd class and Civil Surgeon of Quetta, is appointed to hold charge of the current duties of the office of the Residency Surgeon and Chief Medical Officer in Baluchistan, in addition to an own duties, with effect from the 28th November 1912, and during the absence on privilege leave of Lieutenant Colonel A L Duko, Indian Medical Service (Bengal) or until further orders

We are glad to hear that Dr Lukis, son of Sir Pardey Lukis, has taken the gold medal at the M D Examination of London University It will be remembered that about ten London University It will be remembered that about ten years ago Sir Pardey himself took the gold medal at the same oximination, a line record

THE following postings and transfers are ordered in the Civil Medical Department, Burma — MAJOR C C S BARRY, I MS, on leturn from leve, to be Superintendent, General Hospital, Rangoon, in place of Major T Stodart, I MS, transferred

Major T Stodari, ims, to be Civil Surgeon, Mogol, in place of Captain E T Harris, transferred

ASSISTANT SUPGEON A BALDWIN D'SOUZA has been appointed to act as Civil Surgeon, Jacobabad, from

has been appointed to act as Civil Surgeon, Jacobabad, from the 31st October 1912

Lieutenant Colonel W H B Robinson, Indian Medical Service (Bengal), an Agency Surgeon of the 1st Class and Civil Surgeon, Ajmer, and Administrative Medical Officer in Rajputana is granted privilege leave for three months combined with furlough for four months, and study leave for five months with effect from the 7th November, 1912, under Articles 233 and 308 (b) of the Civil Service Regulations, and the Regulations prescribed in the Notification by the

Government of India, in the Aimy Department, No 31, dated the 13th January 1911

LIEUTENANT COLONEL R C MACWATT, Indian Medical Service (Bengal) an Agency Surgeon of the 2nd Class, on return from leave, is appointed to officiate as an Agency Surgeon of the 1st Class and as Civil Surgeon, Ajmer, and Administrative Medical Officer in Rajputana, with effect from the 7th November 1912, and until further orders

LIEUTENANT COLONEL W MOLLSWORTH, IMS, Acting Professor of Medicine, Madras Medical College, was granted combined leave for one year from or after 15th December

MAIOR D C KEMP, I WS, was due back from furlough on 5th December

CAPTAIN F C ROGERS, I M S , is due out from fuilongh on 19th April 1913

CAPTAIN C A F HINGSTON, IMS, is due out from furlough on 6th May 1913

CAPTAIN M J on 28th May 1913 QUIRKE, IMS, is due out from furlough

CAPTAIN J J ROBE, INS, is due out from furlough on October 1913

MAJOR CORNWALL, I MS, is due out on 9th September 1913

His Excellency the Governor of Bombay in Council is

pleased to make the following appointments —

Lieutenant-Colonel J B Smith, MB, Mch (RUI),
DPH (Cant), IMS, on return to duty, to be Civil Sui (R U I ). geon, Poona

MAIOR A HOOTON, I WS, on relief, to be Medical Officer to the Kathiawar Political Agency and in charge West Hospital, Rajkot

Major W M Houston, MB, BCh (Dub), IMS, on relief, to do duty as Civil Surgeon, Belgaum

CAPTAIN J LUNHAM, WB, BCh (PUI), IWS, on relief, to act as Civil Surgeon, Karwai, vice Major W D A Keys, WD, BS (Dub), IMS, proceeding on leave

Major W D A Kers MD, BS (Dub), IMS, is granted from the 1st January 1913, or subsequent date of relief, such privilege leave of absence as may be due to him on that date and two months and nine days study leave, in combination with fullough for such period as may bring the combined period of absence up to one year

LIFUTENANT COLONFL T E DISON, MB, CM (Edin), DPH (BH), IMS, has been allowed by His Majesty's Secretary of State for India a further extension of furlough

CAPTAIN F W SUMNER, I MS, Civil Surgeon, on return from leave, is posted to Farrukhabad

MAJOR F S C THOMPSON, I MS, is appointed substantively to the Jail Department in Bengal and is confirmed in his appointment as Officiating Superintendent, Central Jail, Alipore, with effect from the 28th August 1912, wice Mi M S Emeison, retired

CAPTAIN N T WFLLS, I WS took over medical charge of Den Ghazi Khan, relieving Capt H C Keates, I MS, who was posted as of Civil Sunga of Campbellpun from 21st

In exercise of the powers conferred by section 6, subsection (1), clause (c), and section 10, of the Indian Universities Act, 1904 (VIII of 1904), His Excellency the Chancellor of the Calcutta University is pleased to nominate the following gentlemen to be Ordinary Fellows of the University

H R James, Esq., WA
Major A T Gage WB, I MS
The Hon'ble Mr Justice H Holmwood, I CS
Lient. Colonel F P May and WB, FR(S, I WS (with
effect from the 20th December 1912)

The following Senior Assistant-Surgeons with the Honoraly rank of Lieutenant are promoted to be Senior Assistant Surgeons with the Honoraly rank of Captain, Joseph Lee

Richard Sharples Michael Courtney John Charles Gillmon Richard Thomas Murphy

The let lement of Major (now Lieutenaut Colonel) Hubert Malins Eule has effect from the 28th July 1912, and not 27th July 1912, as notified in the London Gazette of the 13th August 1912

THE promotions of the undermentioned officers to their present ranks are ante dated as below —

Major George McPherson, MB, FRCSE, from the 28th January 1910, as notified in the London Gazette of the 23rd

January 1910, as notified in the London Gazette of the 231d May 1910, to the 28th July 1909
Captain Richard Edward Flowerdew, WB, from the 26th March 1912, as notified in the London Gazette of the 18th June 1912, to the 30th January 1912
Captain Berkeley Gale, MB from the 31st January 1912, as notified in the London Gazette of the 13th August 1912, to the 30th January 1912

CAPTAIN N W MACWORTH, I MS, made over charge of the Purner Juli to Major J C H Leicester, I MS, on the forenoon of the 18th November 1912

MAJOR E C MACLEOD, IMS, on leturn from leave, is appointed to be Civil Surgeon, Dairang

SURGEON GENERAL H G HATHAWAY, British Service, to be Deputy Director of Medical Services, 8th (Lucknow) Division, with effect from 19th November 1912, vice Surgeon General L E Auderson, British Service, vacated

COLONEL D ST J D GRANT, IMS, to be Assistant Director of Medical Services, Karachi Brigade, with effect from 30th October 1912, vice Colonel R B Roe, IWS, transferred

ON relief by Lieutenant Colonel W B Lane, IMS, on leturn from leave, Major F O N Mell, MB, CM, IMS, Officiating Inspector General of Prisons, Central Provinces, leverts to his substantive appointment of Superintendent,

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Major F O N Mell, M B. C M., I M S., Superintendent, Central Jul Nagpur, to the executive and medical charge of the Nagpur Central Jul

ON relief by Major Mell, Major C H Bensley, MRCS, LRCP, IMS, Superintendent, Central Jail, Nagpur, is transferred in the same capacity to the Central Jail,

On the termination of his course of instituction in Malarialogy at Delhi, 1st Class Military Assistant-Surgeon J A F Harvey, Civil Surgeon, 1s reposted to the Mandla

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to reappoint 1st Class Military Assistant Surgeon J A F Harvey, Civil Surgeon, Mandla, to the executive and medical charge of the Mandla District

CAPTAIN W TARR, M D, FRCS, IMS, Civil Surgeon, Pachmarhi, is reposted to the Nimar District

LIEUTENANT-COLONEL J B SMITH, MB, MCh (RUI), DPH (Cant) IMS, has been allowed by His Majesty's Secretary of State for India an extension of furlough for

MAJOR C MILNE, I MS, Civil Surgeon, Mussoorie, was granted privilege leave for one month and seven days, from the 3rd January 1913

CAPTAIN A W HOWLETT, IMS, on completion of his special duty, is appointed to officiate as Civil Surgeon of Mussooree, vice Majoi C Milne, IMS, granted leave

Major S P James, I Ms, Secretary to the Director General, Indian Medical Service (Sanitary) is placed on special duty under the orders of that officer with effect from

CAPTAIN A G MCKENDRICK, I MS. 18 appointed to be CAPTAIN A G MCKENDRICK, I MS, is appointed to be Secretary to the Director General, Indian Medical Service (Sanitary), sub pro tem with effect from the 22nd November 1912, vice Majoi S P James, I MS, on special duty, and MAJOR W S WILLMORE, IMS, Civil Surgeon, was on study leave from the 2nd September to the 31st October 1912

THIRD Class Civil Sub Assistant Surgeon Harendra Nath Mittra held charge of the current duties of the office of Civil Surgeon at Gangtok, in addition to his other duties for the period from the 11th to the 21st October 1912 during the absence on privilege leave of First Class Military Assistant Surgeon J N Turner, Indian Subordinate Medical Depart ment

FIRST Class Military Sub Assistant-Surgeon Wahid Ali, Indian Subordinate Medical Department, held charge of the current duties of the office of Civil Surgeon at Gangtok, on addition to his other duties, for the period from the 22nd October to the 10th November 1912, during the absence on privilege leave of First Class Military Assistant-Surgeon J N Turner, Indian Subordinate Medical Department

ON return from leave on 10th October Major R Heard, I MS, resumed charge of the duties of Professor of Mid wifery, Lahore Medical College

CAPTAIN H R DUTTON, I WS, Civil Surgeon, Midnapole, has passed the colloquial test examination in Bengali

UNDER the provisions of Article 260 of the Civil Service Regulations, privilege leave for three months is granted to Mi C G Evers, I MS (Mad), LRCP & S (Edin), DPH (Edin), Civil Surgeon Meigui, with effect from the 20th December 1912

ON completion of the special duty in connection with Stegomyra Survey in scaports in Barma, Second Class Military Assistant Surgeon D D Stewart is appointed to be Civil Surgeon, Mergui, in place of Mi C G Eveis, L M S (Mad), L R C P & S (Edin), D P H (Edin) proceeding on leave

UNDIR Regulation 1 (1) (B) of the regulations for the nomination and election of members of the Legislative Council of the Lieutenant Governor of the United Provinces of Agra and Oudh, the Hon'ble the Lieutenant Governor, with the previous sanction of His Excellency the Governor, General, is pleased to nominate the following gentlemen as members of that Council—

Colonel Countenay Clarke Manifold, IMS, Inspector General of Civil Hospitals Lieutenant-Colonel Charles Mactaggart, CIF, IMS, Inspector General of Prisons

Major C R Bakhalf, IMS, was granted privilege leave of absence for twenty two days, with effect from 12th December 1912

ABOR EXPEDITION, 1911 1912—Grant of India General Service Medal—I His Majesty the King has been pleased to command that the "India General Service Medal, 1908" in silver, with clasp, "Abor, 1911 12" shall be granted to all troops who took part in the Expedition, and served under the orders of Major General H Bower CB, Commanding the force, at or beyond Kobo between the 6th October 1911, and the 20th April 1912, both dates inclusive

On return from leave Lieutenant Colonel D T Lane, IMS, was posted to Umballa as Civil Surgeon

On return from leave Lieutenant Colonel D Ronaldson Clark, I M S, was posted as Civil Surgeon of Lahore

Major P S C Moir, ims, was posted to Sialkot as Civil Suigeon on return from leave

MAJOR J G G SWAN, I MS, has been transferred as Civil Surgeon from Dalhousie to Jullandar

MR I U NASIR was posted as Civil Surgeon of Hoshiar pur on return from leave

MAJOR S C EVANS, MB, CM (Edin), IMS, has been allowed an extension by one day of the furlough granted to him in Government Notifications No 5347, dated the 5th September 1911 and No 1701, dated the 12th March 1912

WITH reference to Government Notification No \$485, dated the 10th December 1912 His Excellency the Governor in Council is pleased to appoint Assistant Surgeon Y G Nadgir L w & s., to act as Civil Surgeon Karwar, from the date of departure on leave of Major W D A Keys, M D, B s (Dub), I M s, pending the arrival of Captain J L Lunham, W B, B Ch (R U I), I M s

MILITARY ASSISTANT SURGEON A W HAZLE, IS MD, in medical charge of the Military Police Battalion, Dibrugaih, is allowed special privilege leave for one month, under the orders contained in letter No 1590 EB, dated the 17th July 1912, from the Government of India in the Foreign Department, combined with privilege leave for one month under Articles 250(b) and 260 of the Civil Service Regulations, with effect from the 5th December 1912. effect from the 5th December 1912.

CAPTAIN FLEWING BARNARDO, INS, Civil Surgeon, Bengal, has passed the examination for F R C S Edin Civil Surgeon, burgh

CAPTAIN W GILLITT, IMS, on leave is appointed to be Superintendent of the Bhagalpin Central Jail

MAJOP G Y C HUNTEP, I M 5, on leave, is appointed to be Superintendent of the Bunai Central Jul

Major J W LETHERIDGE, Indian Medical Service (Madras) an Agency Surgeon of the 2nd class, is granted privilege leave for two months and two days, combined with furlough for eleven months and two days, contoined with furlough for eleven months and twenty two days and study leave for nine months and nine days, with effect from the 13th October 1912, under Articles 233 and 308(b) of the Civil Service Regulations, and the Regulations prescribed in the Notification by the Government of India in the Army De partment, No 867, dated the 6th September 1912

SENIOR SUB ASSISTANT SURCEON RAW SARUP held charge of the current duties of the office of Medical Officer, Mewar Bhil Corps, for the period from the 13th to the 18th October 1912, inclusive

CAPTAIN I MCPHELSON Indian Medical Service, an officiating Agency Surgeon of the 2nd class, is posted, on return from leave, as Medical Officer, Mewar Bhil Corps with effect from the 19th October 1912.

# Motre.

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University College Research Reports Vol II
Armstrong s Infectious Diseases in Schools John Wright & Sons, Ld
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Scientific Memoirs No 5d Cragg
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# Brigmal Articles

# THE DIFFERENTIAL BLOOD COUNT IN DENGUE

BY W L HARNETT, MB, FRCS,

CAPT, IMS.

Civil Surgeon, Kamrup, Assam

THE epidemic of dengue which prevailed in Calcutta during the past hot weather followed the course usually attributed to this disease of appearing first in coast towns and travelling inland by way of the valleys of the great rivers. I do not know when the first cases were recognised in Calcutta, but the disease appeared in Gauhati, Assam, about the fourth week in May, when I saw a typical case with a remarkably well developed tash in a European By the end of the month two other Europeans living in the next bungalow had been attacked and nearly all their servants I heard soon afterwards that there were numerous cases in the town and that the disease was widely prevalent in the lower valley of the Brahmaputia, and, on enquiring at the Civil Hospital from the medical subordinates who were in charge of the out patient department, I learnt that cases of fever accompanied by headache and lumbar pain were presenting themselves daily At my request a number of convalescent cases were brought before me, then descriptions of their symptoms showed that the diagnosis of dengue was correct, and on examining films of the blood the changes which I shall describe below and which I now regard as characteristic of the con valescent stage of the disease were found in every case During June, July and August I saw numerous cases and was able to confirm my previous observations. Towards the end of August the cases became less numerous, during September only a few scattered cases occurred and by the end of the month the epidemic had entirely ceased

## CLINICAL COURSE

I do not propose to say much on the aspect of the subject Major Megaw, Ims, in his paper "Are Seven Day Fever and Three Day Fever forms of Dengue" (Indian Medical Gazette, January 1909) has exhaustively analysed the clinical features of the diseases known by these three titles, and has sum marised with the greatest lucidity the evidence for their identity. He lays special stress on the variability of the disease in regard to every symptom and the cases which I have seen bear out this contention. The duration and the character of the fever are the most variable points of all and in illustration of this I append a series of thirteen charts arranged in order of duration of the fever.

Fever lasting 2 days	Charts I, II, III
" ,,	" IV-VII
" 4 "	" VIII-X
" ",	" XI XII
" G"	" XIII

Most of these cases it will be noticed fall into the second class in Megaw's classification of the fever—"Short fever type" No IV is the "Interrupted fever type" though not a good example. No. XI is the "Saddle back type", whilst Nos XII and XIII may be regarded as the "Continued Fever type" in which the secondary rise is merged into the primary fever. The series begins with charts typical of the "Three-Day Fever" of Northern India and ends with charts which the fever in dengue.

Headrche at d prin in the loins were constant and characteristic in all the cases which I saw and joint

pains were often present All recent writers on this subject agree that the severe "Break bone" pains of the textbooks are rarely complained of Wimberley (Indian Medical Gazette, August 1910) never saw this symptom, in the Brisbane and Philippine epidemics it was rare, Monro (Indian Medical Gazette, September 1911) saw no instance in 109 cases in the 27th Punjabis at Alipore, nor do McCarrison of Wall describe it as characteristic of the Chitial fever. My experience is the same, but that the pain does occasionally assume this form I can vouch for, as I saw two cases in Europeans in which this very term was used by the patients themselves who, when questioned, assured me that they had not only never read any medical book, but had never before heard of dengue. One of these patients in the letter asking me to come and see him wrote—"It began yesterday with a slight pain in my left foot. to-day the whole of my body feels as if there isn't a single whole bone in it." Does not this read like a plagiarism from Manson?

The rash is generally agreed to be a variable feature, it is in my experience much more difficult to detect in Indian patients than in Europeans and Eurasians, the few cases which I saw of the latter races all had well muked rashes appearing about the 5th or 6th day, whereas in Indian cases it was either never detected at all, or was very slight and evanescent. The appearance of the rash was always immediately followed by the

disappearance of the pains

## THE BLOOD CHANGES

The recorded blood changes in dengue are (1) a marked lencopenia setting in after the 2nd or 3rd day of the fever, (2) a diminution of the polymorphonuclears, (3) a marked relative and some actual increase of the large and small mononuclears

(1) Leucopenia I find to be invariable during the febrile stage and is usually well marked after the second day Lack of time pievented me from counting the total number of leucocytes except in a few cases, but in those which were counted I found the number of leucocytes to be 3000 4000 per cmm From the appearance of the films I judged in the other cases that the numbers present did not differ widely from the above

(2) The reduction in the polymorphonuclears becomes manifest at the same time as the leucopenia and continues to progress as other varieties of leucocytes

increase during the next few days

(3) The large mononuclears (large hyalines) rarely show any wide departure from the normal in most cases they are slightly diminished in numbers. The lymphocytes, both large and small, at first relatively increased from the diministron of the polymorphoniclears, show an absolute increase towards the end of the week. The distinction between large and small lymphocytes in this disease is rather arbitrary, as all sizes are met with from  $6\mu-12\mu$ . A common variety met with in this disease is slightly larger than the ordinary small lymphocytes with a round or slightly indented nucleus, placed a little eccentrically, with a clear blue protoplasm (Leishman's stain) containing several coarse basophil granules. These cells are often met with in malarial bloods, but are especially common in this disease and are evidently associated with the lymphocytic increase which occurs towards the end of the week. The difficulty in classifying them is increased by the fact that owing to the leucopenia, the differential count has to be done at the edges of the film where the cells are always hable to be distorted and hard to recognise

In addition to these well recognised changes there occurs also another, which, as far as I know, has not hitherto been described in dengue, and to which it is the purpose of this paper to draw attention. This change consists in a variable amount of eosinophilia always present, and, sometimes dominating the whole blood picture, which sets in about the 4th—6th day and is well marked by the 10th day, and persists for some time afterwards. In

```
the following 12 cases the first blood count was done
during the febrile stage, and a second and in some cases
a third and fourth during the convalescent stage
  No I Indian Fever lasted 3 days, no rash
No VII
1st Count, 31st July, 1912, 2nd day —
    Polymorphonuclears.
                              61 per cent
    Large Mononuclears
                             35 per cent
                             16
    Large Lymphocytes
                                            =335\%
    Small Lymphocy tes
                         ..175
     Eosinophiles
2nd Count, 9th August, 1912, 11th Jay --
     Polymor phonuclears
                             37 5 per cent
     Large Mononuclears
                              17
     Large Lymphocytes
                                    ,,
                                             =355\%
     Small Lymphocytes
                            185
                                    23
                              25
     Eosmophiles
                                    ,,
   Leucopenia marked in both films
   No 2 Indian Fever lasted 2 days
                                                1 ash
Chart I
 1st Count, 30th July, 1912, 2nd day -
     Polymorphonuclears ...
                              58 per cent
                               8
     Large Mononuclears
                             135
     Large Lymphocytes
                                    ,,
                                              =30\%
                           . 165
     Small Lymphocytes
                                    ,,
     Eosmophiles
 2nd Count, 3rd August, 1912, 6th day --
     Polymorphonuclears .
                              41 per cent
                               2
     Large Mononuclears
                              18
     Large Lymphocytes
                                              =38\%
                              20
     Small Lymphocytes
                                    ,,
     Eosmophiles
   Leucopenia in both films
   No 3 European Fever lacted 3 days
                                           Severe prin,
                                            Chart VI
 well marked typical rash appeared 5th day
 1st Count, 24th July, 1912, 2nd day Marked leuco-
   penia
                               77 per cent,
     Polymorphonuclears
      Large Mononuclears
                               35
     Large Lymphocytes
                                              =13^{\circ}5\%
     Small Lymphocytes
                               65
                                     "
     Eosmophiles
                                         Marked lenco
 and Count, 28th July, 1912, 6th day
   penna
                               32 5 per cent
     Polymor phonuclears
                               35
      Large Mononuclears
                                17
      Large Lymphocytes
                                      33
                                               =37\%
                                20
      Small Lymphocytes
                                27
      Eosinophiles
 3rd Count, 4th August, 1912, 13th day
                                            Lencocy tes
    nearly normal numbers
                                59 per cent
      Polymorphonuclears
      Large Mononuclears
                                 2
      Large Lymphocy tes
                                 8
                                               =16\%
                                 8
      Small Lymphocy tes
                                      ,,
                                23
      Eosmophiles
                           Fever lasted 4 days
  severe, well marked typical tash appeared 5th day
  1st Count, 4th August, 1912, 2nd day -
                               79 5 per cent
      Polymorphonuclears
                                95
      Large Mononuclears
                                 65
      Large Lymphocytes
                                       "
                                               =10\%
       Small Lymphocy tes
                                       ,,
                                  1
       Eosinophiles
                                       ,,
  2nd Count, 10 August, 1912, 8th day -
                                605 per cent
       Polymorphonuclears
       Large Mononuclears
                                   5
                                125
       Large Lymphocytes
                                        ,,
                                                =20\%
                                 75
       Small Lymphocytes
                                        ,,
       Eosmophiles
                                        1)
     Leucopenia marked in both films
```

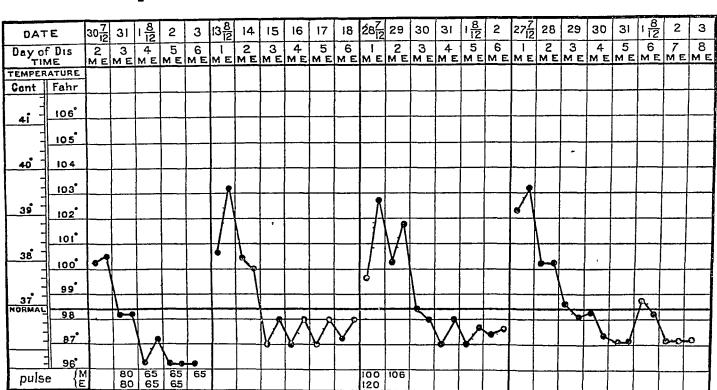
```
No 5 Indian Fever lasted 3 days Pains severe
No rash
1st Count, 4th July, 1912, 2nd day -
    Poly morphonuclears
                                78 per cent
    Large Mononnelears
                               65
                                 q
    Large Lymphocytes
                                     ,,
                                             =155\%
    Small Lymphocytes
                               65
    Eosmophiles
                                 0
2ud Count, 21st July, 1912, 19th day -
    Polymor phonuclears
                                68 per cent
                                 5
    Large Mononuclears
                                 8
    Large Lymphocytes
                                      ,,
                                             =20\%
     Small Lymphocytes
                                12
                                      "
     Eosinophiles (E)
  Leucopenia in both films
  No 6 Indian Fever lasted 3 days Herdache severe,
but loin pains slight No rash Chart IV
1st Count, 28th July, 1912, 2nd day
                                      Moderate leuco
     Polymorphonucleans
                               57 5 per cent
                               11
     Large Mononuclears
     Large Lymphocytes
                               15
                                              =31%
                               165
     Small Lymphocytes
     Eosmophiles
                                0
                                        Slight leuco
2nd Count, 8th August, 1912, 13th day
   cy tosis
                               754 per cent
     Polymorphonuclears
     Large Mononuclears
                                6
                                9
     Large Lymphocy tes
     Small Lymphocy tes
                                56
     Eosmophiles
   No 7 Indian Fever lasted 2 days Pains severe,
 well marked typical rash appeared 6th day
 1st Count, 30th July, 1912, 3rd day -
                                    per cent
     Polymorphonuclears
     Large Mononuclears
                                2
                                45
     Large Lymphocy tes
                                            =39\%
                               34 5
     Small Lymphocy tes
                                 3
     Eosmophiles
 2nd Count, 4th August, 1912, 8th day —
                                55 5 per cent
     Poly morphonuclears
     Large Mononuclears
                                45
                                11
      Large Lymphocytes
                                              =30\%
     Small Lymphocy tes
                                19
                                10
      Eosmophiles
 3rd Count, 16th August, 1912, 20th day -
                                565 per cent
      Polymorphonuclears
                                3
      Large Mononuclears
      Large Lymphocytes
                               15
                                19
      Small Lymphocy tes
                                 65
      Eosmophiles
    No marked deviation from normal numbers of the
  leucocytes in any of the films
                    Duration of fever uncertain
    No. 8 Indian
  typical No iash.
  1st Count, 22nd July, 1912, 31d day -
                                    per cent
                                82
      Poly morphonuclears
                                 55
      Large Mononuclears
                                 25
      Large Lymphocytes
                                               =125\%
                                10
      Small Lymphocy tes
      Eosmophiles
                              11th day --
  2nd Count, 30th July, 1912
                                     per cent
                                55
      Poly mor phonuclears
                                 3
      Large Mononuclears
                                11
                                              } = 31%
                                        ,,
       Large Lymphocytes
                                 20
       Small Lymphocy tes
                                11
       Eosmophiles
    Marked leucopenia in both films
```

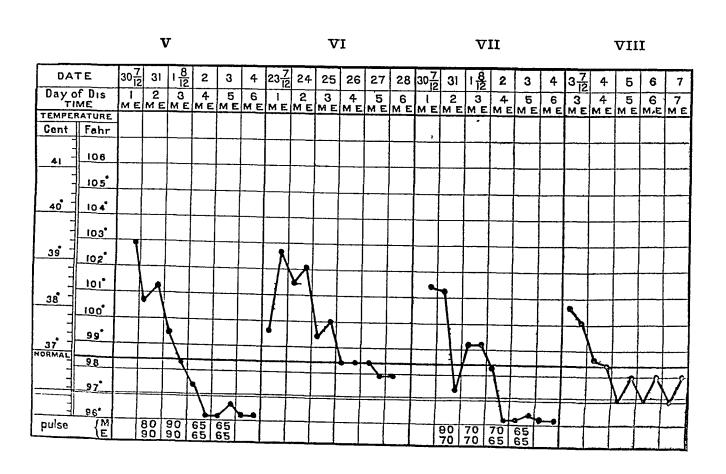
# THE DIFFERENTIAL BLOOD COUNT IN DENGUE

BY CAPT W L HARNETT, IMS, MB, FR.CS,

Civil Surgeon, Kamrup, Assam.

CHARTS I III. IV

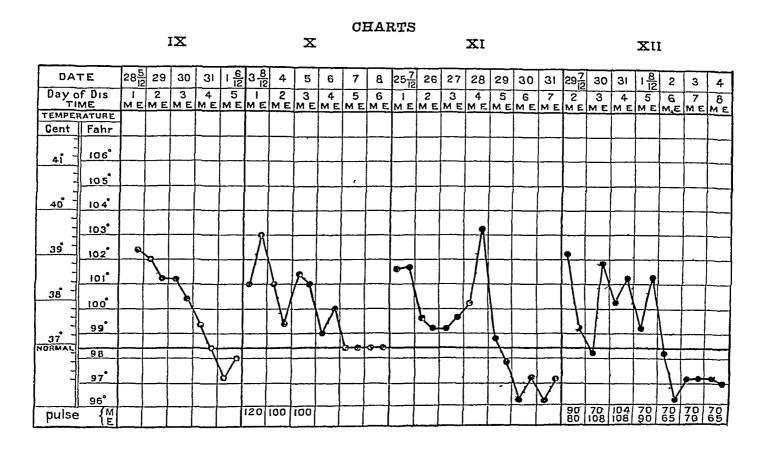


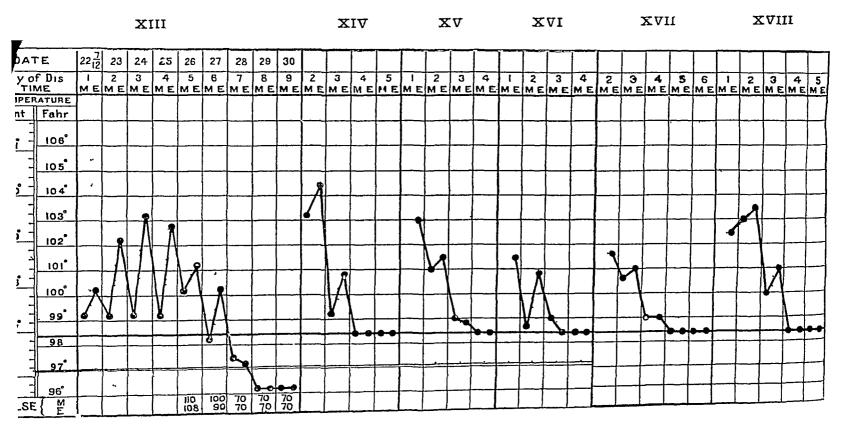


# THE DIFFERENTIAL BLOOD COUNT IN DENGUE

BY CAPT. W L HARNETT, IMS, MB, FRCS,

Civil Surgeon, Kamrup, Assam.





```
No 9 India
                  Fever lasted 4 days
                                                   pains
                                          Severe
  No rash
           Chart VIII
  1st Count, 3rd July 1912, 3rd day
                                           Total No.
   leucocytes 3700 per cmm
      Polymorphonuclears
                                80 5 per cent
      Large Mononuclears
                                 35
                                       ,,
      Large Lymphocytes
                                 6
                                       "
                                               =16 \%
      Small Lymphocytes
                                10
      Eosmophiles
                                 O
 2nd Count, 8th July 1912, 8th day
                                          Total No.
   leucocytes approximately the same
     Polymorphonuclears
                                615 per cent
     Large Mononuclears
     Large Lymphocytes
                                15
                                               =225 %
     Small Lymphocytes
                                 75
     Eosmophiles
                                 7
   No 10 Indian
                    Duration of fever about 3 days
 Typical pains No rash
 1st Count, 3rd day-
     Polymorphonuclears
                                75
                                   per cent
     Large Mononuclears
                                105
     Large Lymphocytes
                                       13
                                               =95 %
     Small Lymphocytes
                                 65
     Eosmophiles
 2nd Count, 15th day -
     Polymorph anuclears
                                    per cent
     Large Mononuclears
     Large Lymphocytes
                                13
                                      ,,
                                               =18\%
     Small Lymphocytes
                                 5
                                      ,,
     Eosinophiles
     Both slides showed leucopenia
   No 11 Indian Mild attack No iash.
 1st Count, 4th day -
     Polymot phonuclears
                                   per cent
     Large Mononuclears
                               12
     Luge Lymphocytes
                               29
     Small Lymphocy tes
                                              =46 %
                               17
                                      "
     Eosmophiles
                                O
2nd Count, 13th day-
     Polymorphonuclears
                               545 per cent
    Large Mononuclears
                                25
     Large Lymphocytes
                               17
     Small Lymphocytes
                                              =39 %
                               22
     Eosmophiles
                                      ,,
                                4
  No 12 Chinaman
                      Mild 'attack
                                      No 11sh
                                                Fever
lasted 2 days
              Chart II
1st Count, 15th August 1912, 3rd day
                                          Total leuco-
  cytes 4,400 per cmm
    Poly morphonuclears
                               60
                                   per cent
     Large Mononuclears
                                8
    Large Lymphocy tes
Small Lymphocy tes
                               16
                                             =30.5\%
                               145
    Eosmophiles
                               15
2nd Count, 16th August 1912, 4th day
    Poly morphonuclears
                              59
                                  per cent
    Lurge Mononuclears
                               45
    Large Lymphocytes
                              185
    Small Lymphocy tes
                                     >,
                                             =34 5%
                              16
    Eosmophiles
                                     ,,
                               2
3rd Count, 17th August 1912, 5th day
  mereasing in numbers
                                           Leucocytes
    Polymorphonuclears
                               63 per cent
    Large Mononuclears
                              275
    Large In mphocy tes
                                    "
   Small Lymphocytes
                               14
                             1575
    Foemophiles
                                            =2975%
                                    ,,
                              45
4th Count 19th August 1912, 7th day
   Polymorphonuclears
                               63 per cent
    Large Monenuclears
   Large Lymphocytes
Small Lymphocytes
                                    "
                                9
   Eosmophiles
                               18
                                    "
                               8
```

The next series of counts are from out-patients seen at various stages after the subsidence of the fever, with the exception of No 13 which was seen during the febrile stage. Temperature charts were, therefore, unobtainable. Only one count could be done, as the patients were either lost sight of, or else the count was done so late in [convalescence that a second count did not appear likely to be of much interest. It will be noticed that, like the convalescent counts in the first series, every count (except the one done during the acute stage) shows an abnormal percentage of eosino-philes.

## No 13 Indian 2nd day-

Polymorphonuclears	91 p	er cent
Large Mononuclears	, 3	22
Large Lymphocytes	4	"
Small Lymphocytes	0 5	22
Losmophiles	15	"
Marked leucopenia	An unusual count	,,

#### No 14 Indian 5th day

Polymoi phonuclears	65 5 per cent	
Large Mononuclears	3	
Large Lymphocytes	11 "	
Small Lymphocytes	12 ,,	
Eosinophiles	85 "	

No 15 Indian Fever lasted 2 days Typical 1ash appeared on 4th day

#### Count 5th day-

Polymorphonuclears	70 5 per cent
Large Mononuclears	35,
Large Lymphocytes	5 ,,
Small Lymphocytes	8 ,,
Eosmophiles	13 ,,

# No 16 Indian Duration of fever uncertain

## Count 6th day-

Polymorphonuclears	• 15 per cent
Large Mononuclears Large Lymphocytes	0 ,
Small Lymphocytes	*** 1 ,, 5 ,,
Eosmophiles	79 ",

It is most regrettable that this patient was lost sight of The count is a most unusual one and there may have been some other factor concerned in the production of this enormous eosinophilia

No 17 Indian Fever lasted 4 days Pain severe

Count 6th day Marked leucopenia

D 1		
Polymorphonuclears	53	per cent
Large Mononuclears	. 5	22
Large Lymphocytes	. 3	27
Small Lymphocytes Eosmophiles	21	19
тозиоринея	18	,,

No 18 Indian. Fever lasted 3 days Pain severe and still persisting on 7th day. No rash

#### Count 7th day

Poly morphonuclears Large Mononuclears Large Ly mphocytes	54 per cent 15 "
Small Lymphocytes Eosinphiles	. 125 "

No 19 European Fever lasted 7 days Pain not very severe Transitory rash on 6th day Diarrhoea during the last 4 days of the fever

Count 8th day Leucocytes approximately norma

Polymorphonuclears Large Mononuclears Large Lymphocytes Small Lymphocytes Eosmophiles	-	· 125 4 1375	per cent.
samopinges	_	6 75	,

No, 20 Indian Mild attack	No rash
Count 9th day	
Polymorphonuclears	55 per cent
Large Mononuclears	75 ,,
Large Lymphocytes Small Lymphocytes	13 5 ,,
Eosmophiles	9 ,, 15
2nd Count 21st day	10 ,,
Polymorphonuclears	68 ner cent
Large Mononuclears	68 per cent 8 ,,
Large Lymphocytes	7 ",
Small Lymphocytes	7 ',
Eosiniphiles	10 ,,
Marked leucopenia in both sli	des
No 21 Indian Fever lasted a	3 days. Severe pains
No 21 Indian Fever lasted 3 No rash Count 10th day, marked leucopem	_
No rash Count 10th day, marked leucopem	a
No rash Count 10th day, marked leucopem Polymorphonuclears Large Mononuclears	_
No rash Count 10th day, marked leucopem Polymorphonuclears Large Mononuclears Large Lymphocytes	a 54 per cent
No rash  Count 10th day, marked leucopem Polymorphonuclears Large Mononuclears Large Lymphocytes Small Lymphocytes	a 54 per cent 10 5 ,, 12 5 ,, 18 ,,
No rash Count 10th day, marked leucopem Polymorphonuclears Large Mononuclears Large Lymphocytes	54 per cent 10 5 ,, 12 5 ,,
No rash  Count 10th day, marked leucopem Polymorphonuclears Large Mononuclears Large Lymphocytes Small Lymphocytes	54 per cent 10 5 ,, 12 5 ,, 18 ,,
No rash Count 10th day, marked leucopem Polymorphonuclears Large Mononuclears Large Lymphocytes Small Lymphocytes Eosmophilis	54 per cent 10 5 ,, 12 5 ,, 18 ,, 5 ,,
No rash  Count 10th day, marked leucopem Polymorphonuclears Large Mononuclears Large Lymphocytes Small Lymphocytes Eosmophilis No 22 Indian Typical pains Count 11th day Polymorphonuclears	a 54 per cent 10 5 ", 12 5 ", 18 ", 5 ", No 1ash
No rash  Count 10th day, marked leucopem Polymorphonuclears Large Mononuclears Large Lymphocytes Small Lymphocytes Eosmophilis  No 22 Indian Typical pains Count 11th day Polymorphonuclears Large Mononuclears	a 54 per cent 10 5 ", 12 5 ", 18 ", 5 ", No 1ash
No rash  Count 10th day, marked leucopem Polymorphonuclears Large Mononuclears Large Lymphocytes Small Lymphocytes Eosmophilis No 22 Indian Typical pains Count 11th day Polymorphonuclears	54 per cent 10 5 ,, 12 5 ,, 18 ,, 5 ,, No 1ash 78 5 per cent

No 23 Indian Severe attack No 1ash Chart No XIII

Count 12th day

Eosinophiles

Polymorphonuclears	40 p	er cent.
Large Mononuclears	25	11
Large Lymphocytes	13 5	"
Small Lymphocytes	31.5	,,
Eosinophiles .	125	11

No 24 Indian Fever lasted 4 days Severe pains No rash

Count 13th day Moderate leucopenia

Polymorphonuclears	. 60 5	per cent
Large Mononuclears	3	• ,,
Large Lymphocytes	6 5	11
Small Lymphocytes	12	1)
Eosmophiles	18	1)
Eosmophiles	18	

The average cosmophiles percentage of the first counts in the first series was 17 per cent, and of the later counts in this series 134 per cent. In airving at these figures one case in which the cosmophiles never lose above 4 per cent is omitted, as also one case in which it was 5 per cent in both counts, these figures being within the limits of normal variation. Adding the figures of the eosinophiles counts of the second series to those of the later counts of the first series the average is 138 per cent, after omitting one case in the acute stage, one in which the eosinophiles were only 5 per cent, and one in which they were 79 per cent, it being doubtful whether the attack of dengue was the sole causative fact in this

The 24 cases which furnished the material for these observations were in no way selected The series might have been made much larger had time, and the pressure of other duties permitted. They are practically a conse cutive series, and it will be seen that in every single case (with the exception of No 13 where a second count was not done) there was an increase in the cosmophiles during the postfebrile stage of the disease, although in three cases it did not exceed 5 per cent, in all the other

cases it averaged 13 4 per cent —13 8 per cent
In several cases the faces were carefully searched
microscopically for the ova of parasites with negative results, nor was any other possible cause of the

eosmophilia ever found That it occurs at about the same time as the iash appears or should appear is noteworthy, but I found no difference in the amount of eosmophilia between those cases in which a rash was observed and those in which it was absent

In most cases only 200 leucocytes were counted, this was due to the leucopenia, which rendered the counting of any larger number a lengthy and tedious process and would usually have involved the examination of a second slide Major Rogers, IMS, has pointed out that by counting only the edges of a film one gets figures in which the polymorpholuclears and the cosmophiles are unduly high, the mononuclear elements preponderating in the parts of the film rather further from the edges This source of fallacy, however, does not effect counts where there is extreme leucopenia, as it will be found in all cases that starting from one edge of the film one has worked well into the central parts of the film by the time 200 leucocytes have been counted

Leucopenia with rapidly developing eosinophilia is then the characteristic blood change towards the end of the first week of an attack of dengue As far as I know such a condition does not occur uniformly in any other disease, and may be looked upon as diagnostic Unfortunately it is too late in occurrence to be of use for diagnosis when most wanted—during the first few days of the fever. The principal utility, however, of this observation, if confirmed, will be in the assistance it will afford in setting the identity or otherwise of "Three Day Fever" and "Seven Day Fever" with dengue. Dengue is a disease so variable in every symptom and sign that, failing the isolation of the actual parasite, it has not been possible to settle upon any characteristic sign and use it as a test of the identity of doubtful cases There can be no reasonable doubt that the epidemic which visited Calcutta this summer was dengue, nor have I any doubt that the cases which furnished my material were cases of dengue and I bring these observations forward in the hope that during the recrudescence of the disease which will in all probability occur next hot weather, they may be confirmed and established as of as istance in determining whether "Three Day Fever" and "Seven-Day Fever" are forms of endemic dengue or unrelated

I have not had the good for tune to see a series of cases of Seven Day Fever, but concerning Three Day Fever I have some observations to offer. In 1908 and 1909 I was stationed in Dehra Dun, and had the opportunity of seeing a large number of cases of three day fever which occured each year during the hot weather, and I was informed that a similar fever had been observed during the hot weather of 1907 Soon after the monsoon broke, malana made its appearance and the number of malarial cases increased steadily as the autumn advanced, the other type of fever gradually disappearing Of course along with the cases of three day fever there were numerous cases of malaual relapses, fevers due do chills, sore throats, etc., and the number of cases being very large, it was not possible to make microscopical examinations for para sites and blood counts in more than a small proportion, so that an exact diagnosis was not made in many cases One fact in the distribution of the cases amongst the garison was apparent from the start The majority of the case, of three day fever occurred amongst the 9th Gurkhas, a regiment which had recently arrived from Lansdowne, whereas the 2nd Guikhas, who were permanently stationed in Dehia Dun, and the two batteries of Mountain Artillery, which were recruited from the Punjab, remained comparatively free This is what one would expect if three day fever is, as now appears to be the case, endemic in the plains of Upper India Regiments newly arrived from the hills would suffer the heaviest, those recruited in the plains or permanently stationed there having become comparatively immune. It was during the course of routine examinations of the blood of fever cases that

I lighted upon this postfebrile eosinophilia in numerous cases of fever in which malarial parasites and increase of large mononuclears were absent I give here a few of the blood counts

No 1 Recruit No previous admission for malaria Fever lasted 5 days. No parasites.

1st Count, 31d day-	
Polymorphonuclears	19 per cent
Large Mononuclears	14 ,,
Lymphocytes	60 ,,
Eosmophiles	7 ,,
2nd Count, 10th day-	
Poly morphonuclears	62 per cent
Large Mononuclears	12 ,
Lymphocytes	14 ,,
Eosmophiles	12 ,,
••	

No 2 Reciuit No pievious admission for malaria Fever lasted 3 days No parasites

1st Count, 2nd day—			
Polymorphonuclears		78	per cent
Large Mononuclears		14	,,
Lymphocytes	••	8	"
Eosmophiles	***	0	"
2nd Count, 9th day-			
Poly morphonuclears	***	47 5	per cent
Large Mononuclears		16	"
Lymphocytes		16 5	"
Eosmophiles		20	"
3rd Count, 39th Day-			
Polymoi phonuclears		48 5	per cent.
Large Mononuclears		8 5	1)
Ly mphocy tes		17	"
Eosmophiles		26	"
Mr. o p.d. a			

No 3 Rifleman, 2 years' service No admission for fever for past 6 months Fever lasted 4 days No parasites

1st Count, 2nd day— Poly morphonuclears Large Mononuclears Lymphocytes Eosmophiles 2nd Count, 9th day—	· 79 per cent 10 ,, 10 ,,
Polymorphonuclears Large Mononuclears Lymphocytes Eosinophiles	60 5 per cent 8 5 ,, 17 ,, 14 ,,
31d Count, 19th day — Poly morphonuclears Large Mononuclears Ly mphocytes Eosinophiles	54 5 per cent 10 " 22 5 " 13 ".

No 4 Recuut No previous admission for malaria Fever lasted 4 days

1st Count, 3rd day-	
Polymor phonuclears	49.5 pan and
Large Mononuclears	495 per cent 10
Ly mphocy tes	. ,,,
Eosmophiles	37 ,,
2nd Count, 12th day-	35 ,,
Poly morphonuclears	43.5 pay and
Large Mononucleaus	43 5 per cent
Lymphocy tes	>)
Losmophiles	34 ,,
No 5 Recruit Fever lasted 3	13 ,,

er lasted 3 days Chart XIV1st Count, 4th day -

Large Mononuclears Lymphocytes Losirophiles 2nd Count, 7th day—	61 5 per cent 7 " 30 " 1 5 ",
Polymorphonucleus Luge Mononucleus Lymphocytes Lounophiles	55 per cent 6 " 23 " 16 ",

	No 6 Recruit Fever lasted 3	days	Chart XV
	Count 6th day—		
	Polymorphonuclears .	. 65	per cent.
	Large Mononuclears	8	• ,
	Lymphocytes .	. 20	11
1	Eosinophiles	7	1)
ļ	No 7 Recuut Fever lasted 3	days	Chart XVI
1	1st Count, 4th day—		
1	Polymorphonuclears	82	per cent
ı	Large Mononuclears	12	,,
{	Lymphocytes	6	,,
١	Eosinophiles	0	11
ĺ	2nd Count, 6th day-		
j	Polymorphonuclears	64	per cent
١	Large Mononuclears	8	,,
ı	Lymphocytes	21 5	"
J	Eosmophiles	6 5	31
	No 8 Recruit Fever lasted 4 d	lays	Chart XVII
	Count 5th day—		
1	Polymorphonuclears	45	per cent
1	Large Mononuclears	12	17
	Lymphocytes	32	))
İ	Eosinophiles	11	1)
	No. 9 Recruit Fever lasted 3 d	ays	Chart XVIII
	Count 4th day—		
	Polymorphonuclears	63	per cent
	Large Mononuclears	ě	19
	Lymphocytes	24	"
	Eosmophiles	4	33
	m c .		

These few observations are the only ones that I have preserved in my notes The occurrence of eosinophilia appeared to me at the time to be of academical but of no particular practical interest, hence I did not follow up the point and establish it by a large number of observations But when I found the same phenomenon in a series of cases of undoubted dengue, its bearing on the question of the identity of these fevers became at once apparent, and I publish these observations in the hope that they may be found to be of some use in the settlement of this question

# THE PROBLEM OF DENGUE, THREE-DAY AND SEVEN-DAY FEVER

BY W L HOSSACK, MD, DPH,

Port Health Officer, Calcutta

CAPTAIN KENNEDY'S paper on Dengue, which has just appeared in the Indian Medical Gazette, November, 1912, is of particular interest, not only on account of its intrinsic value, but still more because it affords an opportunity for all to put on record their impressions of a most striking epidemic It also reopens, and in my opinion finally closes, an interesting contioversy as to the relations of three Indian fevers which have been given distinctive names, three day fever, seven day fever, and dengue, whether they are three distinct diseases, or three interchangeable and inseparable expressions of one very variable disease A short resumé of the history of the controversy seems advisable, particularly as it may help to bring opinions to a focus In 1905 Rogers added yet another to the many services he has rendered in the study of Indian diseases by publishing a detailed account of seven day fever, he described it as an endemic fever confined to seaports and coastal regions and quite distinct from dengue This was very shortly afterwards followed by a description of three day fever in Chitral by MacCarrison MacCarrison admitted the great similarity between the new disease and that described by Rogers, but decided after great hesitation that they were distinct because in three day fever there was no tendency to have either rash or terminal rise of temperature

Fooks now came on the scene with a description of an outbreak in Sialkot, in which three day and seven day types of fever, with intermediates, were present in the same epidemic. A rash was observed in some of the cases. He avoided stating conclusions, but the facts of his paper did this for him, it seemed clearly demonstrated that three day and seven day fever were slightly differing expressions of the same disease.

Contemporaneously and, as far as I remember, quite independently of any Indian work, Ashbourne and Craig described an epidemic in the Philippines which they named dengue Amongst the fever charts published were charts identical with those of three-day and seven day fever

In 1908, Megaw entered the lists and collected and analysed the facts recorded by the various observers who have just been mentioned. As the result of his analysis he arrived decisively at the conclusion that all three were one and the same disease. Rogers failed to produce any arguments against the facts so ably maishalled by Megaw, in fact, he may be said to have retired behind the entrenchments of authority, and from that impregnable position he breathed reproaches on Megaw for his lack of reverence. All Megaw had done was to explain the greater severity of the dengue of the past, as judged by existing text-book accounts, by the fact that the old observers probably overlooked the slighter and less typical cases, and had a tendency to over emphasise the striking features of the class of cases they deemed typical.

It is certain that Verchere and Elliot drew much more harrowing pictures of the 1872 epidemic than did Edmonstone Charles, when he originally put his description on record Quite possibly the disease increased in intensity and virulence as it progressed. One thing is certain that some of the text-books fail to emphasise, as did the old observers, the importance and frequency of slight and atypical cases and that the fact that the disease is a very variable one. Instead, they lay far too much emphasis on striking cases which by no means represent the most typical and common form of the disease.

However, it is no longer necessary to work merely on the records of the past, or to be more accurate text book description as we have just experienced a huge sweeping pandemic which in every way conforms to descriptions of the past, particularly the Calcutta epidemic of 1871 72 as described by Edmonstone The typical Charles in the Indian Medical Gazette rash, both initial and terminal, has been less common in the present pandemic at least in the early stages of the epidemic, but even in 1872 Charles was unable to verify its presence in fully one third of his cases Cases of great severity have been observed, whether one regards the intensity of the pains, the high range of the fever, the hisblity to relapse, or the delayed and painful convalescence. The temperature charts agree painful convalescence with the descriptions and chaits of the past, and also with those of three and seven day fevers. It is true that in the "Lady Fraser" epidemic the continued type of fever, the three day type, was chiefly observed, but it must be noted that Edmonstone Charles insists that relapses, and in them he includes terminal rise, are an accidental manifestation It is difficult to avoid the conclusion that Rogers is confionted with two alternative courses either he must contend that we have had three diseases or at least two simultaneously epidemic in Calcutta, or he must admit that Megaw was right and that alterations are necessary in his descriptions of both dengue and seven-day fever

In a recent discussion on the dengue epidemic Rogers laid emphasis on the fact that the pulse observed by Di Dutt had been a rapid pulse as opposed to the slow pulse of seven day fever, my own observations have led me to a contrary conclusion, a rapid pulse has been quite exceptional and when it occurred it was almost always associated with hyperpyrexia. In the classical

descriptions of dengue there seem to be some divergence of opinion on this matter

Edmonstone Charles emphasizes the lack of relation of the rapidity of the pulse to the height of the fever scheme with characteristic thoroughness describes it as sometimes rapid, sometimes slow Erahan savs it is not ordinarily a slow pulse Clayton says it may be rapid or little affected Manson, Jackson, and Castellani make it rapid at a rate increasing proportionately to the temperature

The three main points that have to be settled are -

- (1) Is the dengue of 1912 in Calcutta the same as the dengue of 1872
- '2) Does the dengue of 1912 include individual cases and outbreaks indistinguishable from cases and out breaks of three and seven day fever
- (3) Is it possible that dengue is inseparable clinically from three and seven-day fever, but that these latter are nevertheless distinct diseases

As to the first question I think there will be no disagreement. Dengue in 1912 practically does not differ at all from dengue in 1872

As to the second I shall be glad to hear the points on which the outbreaks and cases of 1912, particularly the "Lady Fraser" outbreak, are to be distinguished from three and seven-day fever

As to the 3rd question it may be suggested that it is time that this dengue epidemic in many individual cases, cannot be separated by clinical tests from three and seven day fever, but nevertheless it is clear that dengue is some thing quite new to this generation from the fact that it has attacked all and sundry even those who were immune from seven-day fever, either from an inherited immunity as in Bengalia, or from an immunity acquired from pre vious attacks, as in Europeans It seems to me that in such an argument a great fallacy is involved it assumes that when a great pandemic of any disease occurs, the said disease cannot have previously existed in a community in a sporadic and endemic form, other wise there would have been too much immunity to allow the disease to break out as a pandemic. But such an assumption is contradicted by many of the findings of epidemiology. It frequently happens that the origin of a pandemic is found in sporadic and endemic cases of the same infection and that this infection has suddenly undergone a great exaltation of virulence How else are you to explain the devastating small pox epidemic that swept Calcutta in 1909 It was so virulent that it not only broke down the protection afforded by vaccination, to a considerable extent, but even broke down the protection afforded by a previous attack of small-pox itself Fatal results were recorded in cases well marked with small por I cannot close this part of my argu ment more suitably than with a quotation from Verchere writing in 1879 of the Calcutta dengue epidemic of 1872 "The disease is endemic to a very small extent in Calcutta and other localities in tropical climates and it is then non contagious. It is susceptible of acquiring opidemic exaggeration and it then becomes a true travel ling epidemic" Now let us leave controversial argu ments and deal with what, it must be admitted, are very fragmentary records of the epidemic as I have experienced it

## BEGINNINGS OF THE EPIDEMIC

The enrhest case that I came across, one that I farled to recognise at the time, was that of a topaz on the P & O "Sardinia," by name Francis Fernandez He was found on the ship as she was going to sail on 4th May 1912 He had a temperature of 103, pulse 120—he was walking about—had marked headache and pain in the back and had a profuse brick red macular rash on arms and chest, showing up clearly though the skin was very dark. I sent him to the Campbell Hospital, as possibly a case of small pox with abnormal produomal rash. He was discharged from hospital three or four days later

with a diagnosis of "simple fever with some pinckly heats" (sic)

OUTBREAK ON THE DREDGER "SANDPIPER"

On the 9th May, 1912, the dredger "Sandpiper' came into port from down the river with 11 cases on board which I diagnosed as dengue I put her into quarantine as I had no knowledge that the disease was then prevalent in Calcutta The patients were suffering from short fever of two to four days duration, the temperature running up to 102 and 103 batch there were only one or two with a slight rash Dr Elmes was put in medical charge and on the 12th and 13th Major Rogers visited the ship and confirmed the diagnosis By that time two Europeans and 30 natives had been attacked and 14 were convalescent On the 14th I released her from quarantine as I had found out that dengue was prevalent in the city 1 found the gunner on that date suffering from fever with a profuse red rash all over the body. On the 17th with a profuse red rash all over the body. On the 17th when she had returned to work down the river one European and four natives were attacked, one of the natives was a relapse case, having been already attacked Pains were not a predominant in the first batch feature in this outbreak, there was nothing comparable to the bone breaking fever of text book descriptions, so much so that the diagnosis of dengue which I had given was a guarded one

## OUTBREAK ON P V "LADY FRASER"

The vessel had been lying in port for over a month when on 30th May 1912, I received intimation of an outbreak of infectious disease, which had broken out three or four days previously amongst the firemen On this date there were seven cases and between this and the 7th June, 18 cases in all developed, these cases constituting the first half of the epidemic. The position of things on the 7th of June was that two of the 18 cases had been sent to hospital, one with pneumonia and another with doubtful chest symptoms—he was discharged well in two or three days-and the rest were convalescent and for three days there had been no fresh cases It proved impossible to detain the ship any longer as her consort was out of coal, so on the 8th she went down to the Sandheads On the 10th she reported by wireless three fresh cases, and when I went down to her on the 13th June, I found 11 fresh cases From the 14th to the 17th seven more cases occurred, making 18 in all in the second batch 1 must apologise for the very scruty records I have to give, Dr Elmes was in medical charge of the first batch and as for the second batch, well the monsoon was coming in, the "Lad, Fraser" is a notorious roller and to put the truth plainly I was not in a position to make very full or accurate records, but still I recorded in my visits two or three times a day any departure from the average in pains or temperature or presence of rash "No rash" was particularly noted. The best thing I can do is to quote from my official medical report

#### MEDICAL REPORT

The medical aspect of the outbreak is of some interest. Though the epidemic was diagnosed as dengue, the cases were by no means very typical. Rash was almost completely absent. In 7 cases of the first batch seen on the 31st May only one had a doubtful rash, one subsequent case of the batch of 18 had a famly marked rubcoloid rash, while none of the 18 of the second batch shewed any rash at all. Temperatures were taken morning and evening, but only one or two of the cases shewed any tendency to terminal rise. The average duration of the fever was only two days. The average maximum temperature was 102 F, while 4 cases had 104, one rising to 1045. The pulse tended to be slow, about 90 or less. One man was found in a somewhat collapsed state on the second day of fever, with a pulse of only 50. In the first batch joint-pains were not very marked in some of the cases, but in

the second batch nearly all complained bitterly of these sometimes for a day or two after the fever had gone. A burning pain in the chest was complained of by several The typical double attacks of dengue as described by Manson were almost completely absent. There was only one case of relapse—Mahomed Ali, Frieman. He had an attack in Calcutta, went to sea cured on the 8th, but got ill again on the 14th June with pulse 100 and remperature 104.2 On 15th June his morning temperature was 101 and on 17th he is noted as recovered. Only two of the extra friemen imported on the 19th June subsequently developed the disease. The first got ill on the 22nd June. This would point to an incubation period of only three days. Another, one got ill on 25th June, which gives an incubation period of six days.

However, it is very difficult to be definite as to the incubation period, considering the fact that the disease started in Calcutta amongst the firemen about the 27th May, and it was not until 16th June that the last case developed. No cases developed amongst them from 5th June until 10th June, and from this date until 16th June no less than 11 cases were found, all amongst the men who had been on the ship from the beginning of the epidemic. It should be noted that firemen and lascars share one common forecastle. In the first outbreak, lascars predominated, in the second outbreak, firemen. In port the lascars had hard work and exposure to heat, while painting and cleaning up. At sea the engine 100m staff had most of the work and exposure to great heat. This seems to point to the fact that there is such a thing as partial immunity, i.e., an immunity that breaks down only after prolonged exposure to infection, and then only when the general conditions of work ard circumstances are unfavourable to the patient. The captain is a notable case of delayed infection. It was not till the vessel had returned to port, after he had been exposed to infection for over a month, that he developed the disease

It has, been suggested in the Philippines that dengue or seven day fever is conveyed by mosquitoes (Culex), and in India and Europe by saudflies (Phlebotomus) The facts of this outbreak are rather against such a theory During my four days' stay on the ship I saw no mosquitoes, but the Chief Engineer informed me that the ship was not quite free of them, he had seen one or two in his cabin on 16th June, the ship having reached Sandheads on the 8th June At the Sandheads she lay quite 40 miles from the land, and was being scoured by a strong landward breeze (the first advance of the monsoon) so most of the stegomy a that swarmed on her in poit must have been blown out of her, for it must be remembered that she was cruising about and presenting every quarter to the wind in turn certain at least that conditions were extremely unfavour. able for the conveyance of the disease by either phlebotomi or mosquitoes, as the disease developed in at least 7 of the cases, of the second batch subsequent to the 14th of June The ship sailed on the 8th, so that reckoning on an incubation period of three to six days, most of those 7 must have been infected at sea In the case of the extra firemen, who developed the disease on the 22nd and 25th June, it is practically certain that their infection was obtained at sea under conditions which made insect infection at least unlikely. It should be noted that pilot vessels are kept as clean as a Man o' War, so that phlebotomus breeding is almost out of the question on board these vessels

Individual Cases —I wish to quote one or two cases which have come to my knowledge privately, as cases indicating that in individuals at least, the maximum severity of dengue as given in text book descriptions has been fully equalled in this epidemic

Case 1—Major A, 36th Jacob's Horse, Alipore Presumably one of Captain Kennedy's cases He had three attacks in seven weeks, was included to Darjeeling and returned limping with recuirent shifting

pain in the joints I saw him again on the 25th November, 1912, and he informed me that he still was not clear of pains, about five months after his first attack

Case 2—Miss J had an attack of dengue in July Had agonizing pain so that she could not move in bed without crying out. It hurt even to breathe No relapse and speedy convalescence. Compared her pain to rheumatic fever, which she had seen

Case 3 -A bearer in 10, Belvedere Road, treated by This was a case in which the pains were negligible and only a doubtful erythema about the face was present in the latter stages and a tendency to hyperpiexia was the leading symptom The original attack lasted six days and his temperature starting at about 103 kept high, and on the fourth day rose to 105 For nearly 30 hours it kept at from 1045 to 1048, and I was ready all the time for sponging and cold pack On the sixth day it came down to 103 and on the seventh he had a sub-normal temperature That very day he went back to his own residence, but two days later he returned for further treatment with a temperature of nearly 104. In two days this had gone down and then he rapidly recovered He was a typical case of relapse with tendency to hyperprexia The pains were almost negligible and the rash (a terminal rash) was almost imperceptible pulse was at first slow about 90 but eventually reached 120 and resembled a plague pulse

#### Conclusions

- (1) Identity of the 1912 Calcutta epidemic with previous Calcutta epidemics of Dengue 1 think this is generally admitted
- (2) The 1912 epidemic comprised cases and particular outbreaks, notably the "Lady Fraser" outbreak, clinically distinguishable from three-day fever, and as at present exemplified only by Captain Kennedy's paper, indistinguishable from seven day fever
- (3) The evidence recorded in Captain Kennedy's recent paper is against the theory that dengue is carried solely by phlebotomus and the facts of the 'Lady Fraser" out break, are against the necessity for a specific insect carrier of any kind. In the Alipore epidemic phlebotomus was not found at all in what was evidently a family extensive and complete insect survey. In the "Lady Fraser" epidemic, the conditions in the later stages of the epidemic were such as almost to preclude insect carriers.
- (4) The recent pandemic seems to be an expression of a very variable disease caused by an ultra microscopic organism which is endemically present in Calcutta and evinces its presence by giving rise to what have been described as three day and seven-day fevers

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A TELEOLOGICAL WORKING THEORY OF THE ASYMBIOTIC RELATIONS OF THE MALARIAL PLASMODIUM TO ITS ALTER-NATIVE HOSTS—MAN AND THE ANO-PHELES MOSQUITO \*

BY N P O'GORMAN LALOR, NB, BCH, DPH,

Major, ims

[Communicated to the Burma Branch, Birtish Medical Asso ciation, December, 10th 1912]

The varying epidemiological and endemiological phenomena of malaria in a single locality from year to year, and coincidently in different localities under varying local conditions, are so complex, that speaking for myself I have long felt the need of a working theory of some kind to give direction to investigation

The consideration of facts at first sight apparently irreconcilable has gradually led me to definite conclusions, which I now venture, gentlemen, to lay before you, as providing that rational basis for investigation which the complexity of the problem demands

We start with the fact that the malarial plasmodium passes its sexual phase in the anopheles mosquito as alternation host, and that certain anopheles of definite species act so frequently in nature in that capacity that they are regarded as definite malarial carriers. On the other hand we know that certain anopheles of species which do not carry malaria under natural conditions, have been found to do so under the artificial conditions of human experiment

These facts are well-known, others of more recent discovery do not yet appear to have attracted the atten-

tion they deserve

During considerable epidemics of malaria which have occurred in India within recent years, common and widespread local carriers—such as Culicifacies and Listoni—examined in large numbers for their direct incrimination, have failed to exhibit sporozoit infest ation

In the Andamans during 1911 Major Christophers found that of local potential carriers Ludlowi alone was active in that capacity, while coincidently at Kyaukpy u on the Burmese littoral—a place whose local conditions differ but little from those which characterised the field of Major Christophers' investigations, my investigations revealed that Fuliginosus was active as a malarial carrier while Ludlowi was not Elsewhere in some localities Fuliginosus has been incriminated as the principal carrier, while it has been found to act but rarely in that capacity in others

My zorbynchus Barbirostris has occasionally been

Myzorhynchus Barbirostris has occasionally been found to act as a carrier in nature, though at one time

supposed not to subserve that function

It will be seen therefore that the facts of mosquito malarial inter relation instead of being simple and fixed as has been thought, are really complex and fluctuating

As regards the malarial plasmodium in the human body and the phenomena—individual and general—to which it gives rise, we need an explanation of the following facts—(1) The periodic recrudescence of the disease at intervals in a single locality of three, five or even ten years, (2) The effect is regards intensification of malaria of the sudden addition to a malarial community by immigration of any considerable number of people who are either perfectly healthy or severally malaria-stricken, (3) The operation of poverty, defective housing and insufficient food, in intensifying malaria in localities where such conditions do not represent the normal state of the population, (4) The gradual lessening of malaria observed to follow the cleaning of jungle and the establishment therein of those civilised conditions

<sup>\*</sup> Note — The author announced the theory developed in the following address on the 18th of November 1912, at the All India Malaral Conference in Madras

associated with the enlargement and extension of a lising town, (5) The discrepant results which have been observed to follow the use of quinine—

(a) By the healthy to prevent infection—Prophylaxis
(b) By the infected to prevent relapse—Phylaxis—
and the confusion which has arisen in attempting to
decide the utility of quinine for each of these purposes,
and the best manner of its employment (a confusion
largely due to the fact that the term "Quinine
Prophylaxis" has been indiscriminately applied to, the
use of the drug in both capacities), (f) The fact—noted
by certain Italian observers—of disappearance of malaria
in certain tracts, notwithstanding the continued presence
of the species of anopheles regarded in such tracts as
the special malarial carrier, and (7) The re-integration in
certain localities as also noted by Italian observers—of
formerly existent malaria for long believed to have been
stamped out

I shall now proceed to enunciate my theory by stating the law which, as I believe, will be found to cover by its operation the phenomena of malaria under various local conditions, and to determine the production in regular sequence of those special phenomena of periodicity which influence the prevalence of the

disease

This law is as follows --

"The viability of a parasite through its life stages in an insect host is the result of an asymbiotic relation between the individual parasite and the individual host, the terms of which are those of their relative vital potential. If the relative vital potential of the parasite is too high the host dies if the relative vital potential of the liest is too high the parasite is destroyed."

Applying this law to the facts of mosquito malaria interrelation to which I have already invited attention, we should expect that for each separate species of anopheles capible of acting as a potential malarial carrier, there is a corresponding level of vital potentia of the malarial gametocyte in the blood of man, which determines for that special species of anopheles its capacity for acting as an efficient host throughout the whole period of the sexual phase

Such species of anopheles will then act as a carrier in It will commence to functionate in that capacity as soon as ever the vital potential of the human gametocyte stage is such, as either to enable the plasmo dium to struggle successfully through its sexual phase against the vital potential of the mosquito, or the mosquito to preserve its existence against the vital potential of the plasmodium, and the mean between these two extreme limits, will condition the maximum infection of that species of anopheles from a constant human source Here, however, we have to draw a distinction between the relative and absolute infection of an anopheline during its effective period Its relative infection—a varying percentage of the species—will be increased in a population rendered unusually susceptible through overcrowding, economic privation, sudden and extensive immigration of the non-immune, or cumulative increase of the non immune in the shape of children below the ages of three, five, or ten previously unattacked by severe malaria. Its absolute infection will depend upon its prevalence as a species Either factor may act alone or both may-in the same of in opposite phases-act Now as the intensity of malaria in a given together population is directly proportional to its prevalence, the operation of the law enunciated will eventually result in destruction of the anopheles concerned -eg, Culicifacies—before it is able to functionate as a unlarial carrier At this point the species will cease to act in that capacity, but either before or as soon as it lins completely ceased so to act, its function as malarial carrier will be taken on by another species of local anopheles, eq, Fuliginosus—of higher vital potential And the larger the number of potential malaria bearing malarial level of the locality, the higher will be the general mainral level of the locality concerned, while towards

the end of the fever season at periods of recrudescence in such locality, the vital potential of the plasmodium in its sexual phase—corresponding to its vital potential as a gametocyte in the blood of man—may attain such intensity as to secure the viability of the plasmodium in species as resistent as Nigerrimus and Baibnostris Under these conditions the intensity of an infection contracted late in the fever season will usually be propor-So far we have been considering the tional to its iarity relation of plasmodium and anopheles from the stand-point of their relative vital potential. We have to take account further of the physical conditions of tempera ture and moisture under which this relation takes place I have given reasons in my report upon malaria at Kyaukpyn for the view on the one hand, that variation in the relative humidity of the air does not influence this relation to the detriment of the plasmodium and on the other, that the average minimum temperature of the 24-hour day, if it fall below a certain level, does so influence it It lowers the vital potential of the plasmodium to an extent which attended or otherwise by viability through anopheles of lower vital potential, must eventuate in complete cessation of carriage this point the fever season is over These considerations appear to account for most of the phenomena of mosquito malarial inter-relation, but they depend intimately upon a varying factor

That factor is the vital potential of the plasmodium in its gametocyte stage as it is obtained by the mosquito from the blood of man

Assuming that the population of a malarial locality is a stationary population in which the number of deaths is equal to the number of births, the mean level of malarial intensity will depend upon the length of scale of vital potential covered in continued series by the potential malarial carriers of the locality, and variation of malarial intensity (apart from periodic variation due to the cumulative presence of children from birth to the ages of 3, 5, or 10 years who have not yet suffered from severe malarial infection) will be due to the relative and absolute infection of potential malarial carriers during the fever season

If this view be correct it will be obvious that the destruction and the disappearance in a malarial locality of anopheles of higher vital potential should reduce the mean level of malarial intensity ultimately to vanishing point, and this furnishes one explanation of the fact that jungle clearing, building, and other works of civilisation, in an area previously malarious, when conducted gradually and without extensively imported coolie labour, are accompanied in instances, by diminution of the disease even to the point of disappearance. A previous prevalence of Ms Barbirostris and Ms Nigerrimus is very often largely reduced under such circumstances.

Let us now turn in the plasmodium in its gametocyte

stage

As a preliminary to consideration of this phase it will be correct for us to premise, that the presence of gametocytes in a fresh blood specimen does not necessarily prove their ability to accomplish that sexual interaction in the stomach of the mosquito which results in the cokinet, any more than does the presence of a zygote in the outer wall of the mosquito's stomach necessarily postulate the eventual materialisation of sporozoites in its salivary glands

The residual vital potential of the gametocyte, and the relative vital potential of the mosquito concerned, will be determining factors in the full accomplishment of the sexual cycle. This view has been already amplified as regards mosquito malarial inter-relation. We have now to consider it from the point of view of the relation between plasmodium and man

From known facts of this relation certain deductions may be made as regards the teleological behaviour of the plasmodium in the blood of man These are as follows—The plasmodium—as long as it is not subjected to adverse influence in the circulating blood on the one hand, or granted easy facilities on the other for the

permanent reversion to its sexual phase, re, for transfer to the mosquito, will continue to lead its sexual phase But if adverse influence be present in the shape of processes of natural destruction due to acquired immunity of the individual, or in the shape of an artificial process of destruction due to the presence of quinine in the circulating blood, the plasmodium will assume the gametocyte stage and will maintain it as long as such adverse influence is predominant

But the gametocyte stage being a resting one in which amæboid movement does not take place, nutritive processes may be assumed to be at a stand still, and the plasmodium to be gradually losing in vitality as a When such influences no longer preconsequence dominate, it will be natural for the plasmodium to exercise its vitality in the recovery of lost ground by

the accomplishment of Parthenogenesis

Here we have at all events, an intelligible explanation of the occurrence of fever, either as result of severe chill, or of the stoppage of quinine by a chronic malarial subject who has been consuming the drug regularly Gametocytes being all of the same phase and accomplishing Parthenogenesis at or about the same time will naturally give rise by their extended development to the simultaneous appearance of a large number of merozoites in the circulating blood

Parthenogenesis has been observed in fresh blood specimens, and its occurrence is well authenticated But the lowering of temperature to which blood is subjected in process of withdrawal is teleologically calculated to encourage gametocyte formation rather than Parthenogenesis, and the behaviour of the plasmo dium in fresh blood specimens, therefore, affords us no index as to the frequency with which Parthenogenesis occurs in the circulating blood and internal organs of

man-particularly the spleen

In the course of my investigation at Kyaukpyu I had occasion to observe that crescents present in the blood of children in the month of October 1911, were absent when the blood was examined after the cold weather There had meantime been no fresh infection, for the infective senson had definitely closed with the month of August 1911 Presumably crescents disappeared in the cutaneous capillaries as a result of them contraction, and re-appeared as a result of them dilatation and the determination of large blood supply to the skin with the returning hot weather, and it is probable that from such of these crescents as possessed sufficient vital potential, the mosquitoes found infected in the course of May 1912 derived their infection

It is admitted that young children who have not previously suffered from malaria possess greater tolerance of-and less resistance to-the plasmodium, and that the plasmodium finds therefore in the blood of such children a perfect medium for its conservation child, however, gradually acquires immunity. This immunity is rapidly established in children who survive a severe attack of malaria, and though the effects of the attack remain-in the shape of enlarged spleen and cachexia—the child is probably immune to fresh attack, while its blood becomes a less and less favourable medium as time goes on for the conservation of the plasmodium

During a year of recrudescence in a malarial locality the whole population will suffer severely and will subsequently be immune to fresh attack, but in the year following and subsequent years a gradually increasing addition of the non-immune will take place in a stationary population in proportion to the birth rate Hence a gradual fall of malarial mortality to a minimum level in years immediately following recludescence, followed by a gradual rise once more from the minimum to the maximum, and the interval which elapses in years, between these phases of maximum and minimum intensity, will-in a stationary population with a constant birth rate -be directly proportional to the mean level of malarial intensity, this again being directly proportional to the length of scale of vital potential in

continued series, of the potential malarial carriers of the

If, in practice, there should prove to be any exceptions to the operation of this theory I am inclined to believe that these will lead us directly to the discovery of that source—if source there be—from which, other than the blood of man, the mopheles mosquito derives its infective power To this - the remaining side of the malaiial problem-we cannot remain blind, for it must strike us that the discovery of sporozoits in the salivary glands of a mosquito such as Fuliginosus—which happens to have been caught after feeding for days upon the blood of man-is not necessarily a proof that these spoiozoits are in every case humanly derived

From the search for transition forms in the ovum and laiva of anopheles one does not hope for substantive results But it should be possible by hatching in captivity and keeping alive individuals of a known carrying species in a highly malarious locality, and by feeding these upon vegetable juices and examining them at various periods after birth of the Imago, to ascertain whether and under what circumstances sporozoits

eventuate

Gentlemen, I should trespass needlessly upon your time and attention were I to present in detail a programme of investigation with a view to the proof or disproof of these suggestions The heads of such a programmeeq, investigation of the sporozoit rate of dead anopheles found at breeding places, as compared with that of caught specimens of the same species in the same locality

during the same period—readily suggest themselves

My excuse for this communication at the present
time is the necessity of a published basis of some kind for national investigation of so much that is complex and obscure, and personal belief that the basis suggest ed will be found to furnish a satisfactory explanation

of diverse and hitherto nieconcilable facts

When we think of the widespread mortality in this country, and in India for which malaria is responsible the necessity for such a basis of investigation is

Had it not been for Manson's theory and its triumphant vindication by Ronald Ross we should still in all probability be surveying the malarial problem helplessly and hopelessly To his distinguished researches officers of the service to which he belonged are indebted for leave to ap proach the further problems presented by malaria in a spirit of confidence and hope If further steps lead us in a wrong direction we can always return to the starting basis he has provided, and take another of the roads which open therefrom. We hope thus before long to find the right road, and if my present communication shall have in any degree contributed to that end it will have fulfilled its purpose

## SANITARY ORGANISATION OF OUR ARMY IN INDIA IN WAR \*

BY P HEHIR,

COLONEL, IMS,

Assistant Director of Medical Services, Burma Division

The function of the sanitary service in war is to keep the greatest possible number of men in the firing line, by excluding preventable disease from the fighting We now fully recognise that in tropical and subtropical countries, more than in temperate regions, it is infective disease, rather than injuries inflicted by the enemy, that depletes the fighting ranks statistics of all tropical colonial armies about d with melancholy records of this fact. In Indian Frontier warfare there is often a six fold increase of bacillary

<sup>\*</sup> A Lecture delivered to the Officers of the Maymyo Garrison, Burma Division, 6th Dec., 1912.

dysentery, diairhea (much of which is probably infective enteritis), and enteric fever, as compared with their peace time incidence, whilst malarial fever is usually increased about 20 or 25 per cent. The methods of preventing disease in war, however, should be based on principles that are practised in peace-time on divisional and brigade manceuvres, regimental and company training

The Director of the Medical Services, His Majesty's Forces in India, at Army Head quarters, is the responsi ble adviser of the Commander-in-Chief in India, on all subjects dealing with the health of our Army in India. On the outbreak of a war, he may be expected to give his opinion on matters connected with the country to be invaded that may affect the health and efficiency of the troops-its climate, and medical topography, the rations, clothing, shelter required, sanitary arrangements, special diseases prevalent in the country, and any special enn-tary precautions to be observed and the organisation necessary, for the prevention of disease amongst the He issues to the Director of the Medical Services of the force such special instructions regarding sanitation and the health of the troops as he considers neces sary to meet the conditions of the particular campaign entered upon Similarly, the Director of the Medical Services, who is the head of the medical service with a force in the field, is the responsible technical advising staff officer of the Commander-in Chief and his staff in the field, in connection with all matters affecting the health and medical arrangements of the force the general officer commanding he has supreme control over the medical services and samitary services con nected with the field force He ordinarily remains at the head quarters of the field force In smaller forces, and in operations where divisions may be working on more than one line, the head of the medical service of the force is a Deputy Director of the Medical Services The Director of the Medical Services in India must necessarily be responsible under the Commander-in-Chief for both the medical and sanitary work in peace, the same holds good with the officer holding that position with a force in the field Similarly, Assistant Directors of the Medical Services (in peace), and Administrative Medical Officers (in war) of divisions, must be responsible for both the prevention of disease and the care of the sick. While these latter officers may delegate their powers in sanitary matters to their sanitary officers they cannot hand over their sanitary responsibilities to them, otherwise there would be overlapping of work, a dual system of orders, and consequently more or less confusion. Our regulations lay down that it is the duty of administrative medical officers of divisions, senior medical officers of bigades and medical officers of units to advise their respective commanders on all matters concerning the prevention of disease and physical efficiency of the troops, the responsibility of carrying out such recommendations rests with these commanders It is the duty of the Director of Medical Services and all serving under him, to adapt their sanitary measures to the military situation as formulated by the Commander-in Chief, and this holds good of all forces in the field, no matter what their size We may on particular occasions be of opinion that the troops are over worked, over-marched, or too much exposed to inclement weather, etc ,-and it may be our duty to let him know the possible consequences, but once he has decided to accept these consequences, it is our imperative duty to support him loyally and make the best of the circumstances Our object is to assist him in defeating the enemy by keeping the ranks of the fighting men as full as the sciences of medicine, military hygiene, and sanitation, can help us in doing

The Director of the Medical Services advises the general officer commanding the force on all questions relating to rations, clothing, shelter, sanitary arrangements, precautions for preventing disease, and on all other questions having reference to the physical efficiency and health of the force. On being informed of the

inordinate prevalence of any disease or of the existence of any epidemic disease, he, with his sanitary officer, immediately investigates the cause of the same-ascertains whether it proceeds from oi is aggiavated bydefects in cleanliness, dramage, nuisances, over crowding, defective ventilation, bad or deficient water supply, a faulty conservancy, dampness, marshy ground or any other local cause, or from bad or deficient food, intemperance, unwholesome liquor, fruit, defective clothing or shelter, exposure, fatigue, or from any other cause He reports to the quarter-master general on such causes, and the measures for their removal, and furnishes the general officer commanding the field force with a daily report on the progress or decline of the From time to time he submits to the Director of the Medical Services, His Majesty's Forces in India, a report on all subjects connected with the hygiene and sanitry state of the aimy in the field, reporting also any special measures he has recommended with the action taken thereon, and the results He advises on the sanitary arrangements of the camps and of occupied towns and villages, and reports whether the surface and vicinity of camps, towns, etc, are kept clean, whether drainage of surface is properly airanged for, that the dead are being properly interred, whether carcases are properly builed or disposed of, and whether the water-supply is kept pure Should there be no Assistant Director of Medical Services or other administrative medical officer on the lines of communication he administers that charge also The Director of Medical Services inspects the medical service and field ambulances connected with the field force, assures himself that everything connected with it is in an efficient condition and according to regulations He assures himself that the sick of corps unfit for duty are sent to the field ambulances and do not encumber the fighting force, and that the field ambulances with the fighting line are not overcrowded

The administrative medical officers of divisions are the technical advisers of their commanders on all medical and sanitary questions They are responsible that everything connected with the health of the personel of their divisions is duly carried out, and that camp sanitation generally is attended to. The administrative medical officer has as his staff officer the divi-sional sanitary officer. There is no special sanitary organisation for a brigade unless it is acting independently, in which case the senior medical officer of the brigade acts as medical and sanitary adviser to the brigade commander, and carries out the duties pertaining to a divisional samitary officer

DUTIES OF DEPUTY ASSISTANT DIRECTOR OF MEDICAL SERVICES (SANITARY)

THE divisional sanitary officer must make a thorough initial inspection of every camp in his charge. During this inspection he directs special attention to the water-

supply, conservancy, &c, in each camp

He should inquire minutely into the manner in which it is proposed to deal with cases of enteric fever, bacillary dysentery, epidemic diarrheea, and other infectious diseases Subject to such instructions as he may receive from the administrative medical officer, the divisional sanitary officer exercises general supervi-sion over the sanitary condition of all places occupied by the troops of the division. Any recommendations he makes should show thoughtfulness with regard to the special conditions in existence, the facility for carrying them out, the available sanitary establishment, and, in general, their reasonable practicability Whenever he deems it necessary, he renews his visits, and throughout the campaign, keeps a watchful eye on all conditions and causes liable to give rise to disease amongst the troops Every camp with the force, however, must be subjected to a daily sanitary inspection by

<sup>\*</sup> Until recently this officer was called the Divisiona Sanitary Officei.

some responsible medical officer, this is indispensable The basis of this is the inspection by the medical officers of individual units. The wide scope of the duties of the divisional sanitary officers should be recognised by military authority, all information called for by him provided, and all recommendations made by him and approved by the administrative medical officer duly carried out. His specific duties are to prevent disease in the division Preventive measures decrease the causes of disease on field service Such causes in large bodies of troops on service are always in existence. In many cases the exercise of these functions requires much tact and firmners, but whenever any serious dereliction, slackness, or opposition is met with, it is to be instantly represented In this there can be no comto higher authority promise

The administrative medical officer, divisional sanitary officer, or medical officer detailed for the purpose, accompanies the staff officer appointed to select buildings or camping sites for the use of troops, and inquires into the sanitary condition of all towns and villages which it is to occupy, or near which a force is to encamp, special observations being made regarding the entamp, special observations being made regarding the existence of any communicable diseases in such places. The spread of communicable disease on service is fostered by overcrowding, continued occupation of camps, and the re-occupation of camps recently used by other troops, and it is of great importance that these should be avoided as far as is consistent with military

necessities

A medical officer, preferably the divisional sanitary officer if available, will always advise on the selection of water supplies for all purposes, and on the methods of protecting the source, and purifying, collecting, storing, and distributing the water. When necessary storing, and distributing the water notices will be posted up showing, the uses to which any supply is to be put, or sentires are posted to ensure that instructions regarding it are carried out. As water borne diseases are frequently spread by the troops themselves, protection of the source requires very constant attention. "Whenever there is reason to suppose that a water supply used for drinking or for kitchens may be contaminated, all water used for drinking or for kitchens is to be boiled under regimental arrangements, or subjected to such other method of

purification as may be available " The allotted number of field ambulances accompany the force into the theatre of operations. One of the most important functions of these ambulances is the prevention of the spread of infectious and epidemic disease On the first indication of an outbreak of epidemic disease, the officers commanding field ambulances in which the cases are in the first instance neceived, reports the circumstance to the administrative medical officer In the case of cholera, plague, and small-pox, these reports are sent at once when the first case occurs An inquity is immediately made by the divisional sanitary officer with the view to tracing the source of the disease and stopping its spread. During the course of an epidemic full information as to its progress is given in the weekly returns of sick, and, when necessary, special reports are submitted Isolation and disinfection are carried out as completely as circumstances permit, and in all cases of infectious disease the excita are, whenever possible, destroyed by heat

# DUTILS OF MEDICAL OFFICERS WITH UNITS

On the march to the theatre of operations and at the front the medical officer inspects the men once a week He should avail himself of every reasonable opportunity of being amongst the men, and note their condition. He will give orders that all cases of indisposition are to report sick at once. My personal experience is that men do not sham sickness when going on field service, and certainly never at the front, but the possibility of this happening should not be forgotten. The medical officer

sees that lations are properly cooked, that the kitchens are clean, and the cooking utensils are cleaned, that the men do not expose themselves to chill or the sun unnecessarily, that they bathe themselves and wash their clothes when opportunity offers. On halt days, he will see that the tents are opened out, the kits ared and sunned, that when rain is expected, tent drains are dug, that, the camp area is properly cleaned, and the lattines in as satisfactory a condition as possible

Medical officers of units make a daily sanitary ins pection of the tents or quarters of their units, satisfy themselves as to the sanitary condition of neighbouring places and the existence of otherwise of communicable disease in them and is to the wholesomeness of local food supplies. They are compelled by regulation to use every endeavour to ensure that the troops obtain a supply of pure, and, if necessary, sterrlised, water for the men's water-bottles, and that impure water is not obtained on the line of march. In a general sense, so far as individual units are concerned, the preventive measures on field service should be no abrupt departure from those adopted in peace times on the march and

during manœuvies The duties of a medical officer in charge of a unit on field service are specially onerous and responsible, because the unit is the first link in the chain of pro tective measures which safeguard the health of the division of whole force He must endersour in every practicable way to prevent undue depletion of the fighting force, and he must remember that it is most important to prevent the outbreak of infective disease, which originating in his unit, may spread to the whole division or force. Careful attention to details of sant tation should always enable him to prevent the intro duction of such disease from without, but his main difficulty will be to prevent the spread of infection originating within the unit itself No matter how carefully and conscientiously men are inspected before being found fit for field service, it is almost certain that carriers of infective disease will be four d amongst the men in at least some of the field force units Nevertheless, if medical officers of units take immediate action on the lines indicated, they should be able to prevent anything in the form of the 'mass' infection or explosive epidemic which has so frequently occurred in field operations. It will be seen that the duties of a medical officer of a unit, when carried out in their integrity, embrace comprehensive preventive measures. The medical officers of units of the present day have more power to insist on the carrying out of what they consider may improve the health of the men of their consider may have been accessed and the more than units than they had ten years ago, and the more they are men of action, the greater the influence they will have with commanding officers in this respect. The whole army in India is beginning to realise that the primary function of the military medical service in peace and war is not to treat disease, but to take steps that there be as little disease as possible to treat

It is most essential that the sanitation of camps of units be carried out thoroughly each day, especially when brigades and divisions are passing along the same ioute to manouvies of to the front in succession Otherwise the camping grounds may become centres for the spread of disease in the force from the begin ning of a campaign The special points demanding attention are the prevention of pollition of all waterattention are the prevention of point tion of an auto-supplies, scavengering of the surface of camps and supplies, scavengering of the surface of camps and their immediate surroundings, the burning of all dry refuse, and strict attention to the condition of the night soil tienches, or incineration of excieta ment of the transport corps and transport animals ment of the transport corps and transport animals generally, whether they be mules, camels, bullocks, donkeys or elephants, need special watching, as they are often most objectionable. The rule that obtains on the march in India should be rigidly observed on field service-all camp sites should be thoroughly cleaned up under the supervision of a British Officer after occupa-tion This cleaning is necessary as the camp will be

required for other troops advancing to the front and possibly also on the return march

It now remains to state how all combatant ranks are educated and trained in military hygiene and samitation to enable them to carry out their duties in connection with the prevention of disease during peace and war

All our military cadets have now to pass an examination in military sanitation before obtaining their commissions, and all lieutenants of European units are obliged to pass a similar examination before promotion to captain Officers of companies, squadions, and batteries of European troops, are obliged by regulation to give instruction in sanitation to their non-commissioned officers and men

The general officers commanding divisions and in dependent brigades arrange for at least one annual course of not less than four lectures and practical demonstrations in faintation to combatant officers. The lectures are given at the herdquarters stations of divisions by the divisional sanitary officer, at other stations by selected officers of the Royal Army Medical Corps and Indian Medical Service.

## EDUCATION OF TROOPS IN MILITARY SANITATION

The importance of an efficient sanitary organisation in peace and war, whereby the health of the troops in cantonments and on field service is maintained and the total number and physical efficiency kept up to the highest possible standard, cannot be over-estimated, and the study of sanitation and the preservation of health is incumbent on every officer, non-commissioned officer and soldier With the object of bringing about this sanitary efficiency and high standard of health during peace and war various courses of instruction are given during peace time in our Aim; in India as part of the routine training of the year. One of these courses is referred to above Another is held yearly for the instruction of non commissioned officers and men of British and Indian units in the sanitation of barracks and camps The following numbers of non-commissioned officers and men are detailed to attend the course from all units -

n	Non com pissioned Officera	Privates
Butush Cavalry British Infantry Battalion Indian Cavalry Regiment Indian Infantry Battalion Battery of Company, Royal Artillery Company, Sappers and Miners	2 6 2 4 7 2 2	16 36 8 26 2

The instruction is carried out by officers of the Royal Army Medical Corps for British Infantry and by officers of the Indian Medical Service for Indian troops. The instructors are detailed by the general officers commanding divisions and independent brigades. Any number of non-commissioned officers and men may attend this course. Definite text books are laid down back course consists of at least 20 days' instruction, and not less than 2 hours daily are devoted to lectures and demonstrations. It is definitely laid down that the course should consist largely of practical demonstrations.

Of the non commissioned officers and men of British and Indian units trained in sanitation The following are employed with their units—

Buttal a	Non com- missioned Privates Officers		
British Cavalry Regiment British Infantry Battalion Other British units Indian Cavalry Regiment Indian Infantry Battalion Other Indian units	" 1 0 1	4 8 1 3 8	
mı	0	1	

The men just enumerated are those employed as a requirental sanitary detachment in both peace and war

The comparatively large number trained in sanitation ensures that there will be a fully large reserve available of non-commissioned officers and men for both the regimental sanitary detachments and sanitary sections, vide infra

Theoretical and practical instruction in the military samitation of peace and war is now being given to our troops in all our large stations. The following includes the more important subjects dealt with in a course of 24 of these lectures (12 theoretical and 12 practical), which I gave two years ago —

Nature and causes of preventable disease in the soldier in peace and war in our Indian Empire, preven tive measures in connection with enteric fever, bacillary dysentery and cholera, malarial fevers, their nature and causes and the rôle of anophelmes as malaria carriers, breeding places of anophelines and then removal, hygienic and sanitary considerations connected with-rectuiting, physical development of rectuits, an and ventilation, the cleanliness of barrack rooms, hy giene of barrack room and tent life water-supplies, then sources, public water-supplies, purification, distribution, and storage of water for troops in cantonments and on field service, food supply, cooking of food, sanitation of kitchens, ablution places, latimes and urinaries, removal and disposal of excreta—pril system with tienching, incinerators, dis refuse, its collection and disposal, personal hygiene, camp sanitation, etc. The practical demonstrations were conducted by visits of the instructing medical officer and the class to barrack 100ms, cook houses, ablution places, latitues and urinals, water-supply works and wells, night soil trenches and incinerators, regimental institutes—coffee shops, canteens, acrated water factories, dairies (in which the possible sources of contamination of milk were pointed out and the methods of sterrhzation shewn and explained), regimental bazaars in which the state of the food and beverages sold was pointed out, the slaughter houses were visited, live animals and carcases inspected, the way of disposal of offal pointed out, bakeries investigated and bread making explained, the dangers through duty workmen indicated, laundries and dhoby ghats visited and their proper working pointed out, the breeding places of mosquitoes and method of dealing with them and the duties of mosquito brigades gone over, anti malanal and anti-mosquito measures demonstrated, the manner in which flies breed and the methods of preventing such breeding shown and dilated on, etc. The non commissioned officers and men of the class were also taken into the field and made to carry out all the work they would be called upon to do on service in connection with water-supplies, latrines and tienches, urmanies, disposal of dry refuse, sanitation of Litchens and the disposal of water therefrom, and camp sanitation generally

The duties of regimental sanitary detachments in peace consist in —Supervising within their lines, water supplies, the sale of food, conservancy, cleanliness, disinfection, and sanitary policing generally. While so employed they are not detailed for other duties except such military training as is necessary to maintain their military efficiency. The duties of these non commissioned officers and men are carried out under the strict supervision of the medical officer in charge of the unit lines, to whom the officer commanding the unit delegates authority to issue any orders regarding routine duties in sanitary matters. The medical officer of each unit is responsible to its commander for the efficient performance of the work of the regimental sanitary detachment.

The duties of regimental sanitary detachments in war consist in —(1) Supervision of water supply, including its protection, purification, and distribution, all apparatus, and chemicals required for these purposes are in charge of this detachment, supervision of food supplies, cooking and slaughter places of the unit, and the disposal of all waste water, disinfection, construction and supervision of ablution places of the unit and

disposal of the waste water therefrom, night soil conservancy, refuse disposal, cleanliness of camps, including those of horse, mule, bullock, camel, or other lines, systematic collection and removal and disposal of refuse by burning or other wise, and the construction of improvised places for these purposes, and act as sanitary police. While in the actual fighting arena, in front of the lines of communication, the sanitation of units and the areas which they occupy, devolves exclusively on the unit itself. The medical officer and the regimental sanitary detachment must look to themselves and then own unaided efforts for the sanitation of the unit. Before reaching the actual fighting arena, that is along the lines of communication from the base to the most advanced base, though units are responsible for the sanitation of the area which they occupy, they are assisted by specially trained and independent bodies of men forming the sanitary sections.

#### SANITARY SECTIONS

These are war organisations trained to their duties in peace time. The personnel of sanitary sections and sanitary squads are maintained or enlisted in the various divisional areas for allotment to the lines of communication. They are essentially divisional organisations from 3 to 4 are attached to each division, the independent brigades having one each

Each sanitary section consists of -

		missioned Difficers	Privates
British		2	8
Indian		2	12
Menial Establishment -			
Sweepers	•	60	
Bildars (diggers)	***	10	
Bhisties (natei cariiers)	•	5	

commanded by a medical officer making a total of 100 The number of sweepers may be increased if necessary

The non commissioned officers and men required to form sanitary sections are taken from the non commis sioned officers and men of infantry units, who have been trained in sanitation and nominated by commanding officers of units on notice received from divisional headquarters during peace, a complete nominal roll for each section being constantly kept up. Commanding officers are responsible that the requisite number of trained men is always forthcoming. Any additional training that is necessary is arranged for by general officers commanding divisions. The sanitary sections primarily go through the special course of training in military hygiene, and field sanitation, already alluded to, and this training is maintained by their being called out for work on manœuvies On mobilisation one of more of the sanitary sections are called up by the Assistant Director of Medical Services, and placed in charge of a medical officer. Under the orders of general officers commanding divisions all units will be informed of the number of non commissioned officers and men they will be required to provide on mobilisation, and the section to which they will be appointed regulations require that the personnel of sanitary sections should be brought together and exercised during manœuvies and a medical officer or officers appointed to command them

The samitary service on the lines of communication, as will have been seen, is organised on a more permanent basis than that of field units. An Assistant Director of Medical Services is attached to headquarters, and is responsible to the Inspector-General of Communications for the samitation of the sites of camps, etc. His jurisdiction includes the base, and the advanced base, and all medical units therein. Under the Assistant Director of Medical Services is a Deputy Assistant Director of Medical Services (Sanitary), who is a specialist in military sanitation, and when necessary, gives his expert opinion on matters connected with the

health of the troops and the sanitation of the lines of communication

For purposes of sanitary administration the lines of communication are divided into sanitary districts and sanitary posts. As a rule the base, advanced base, or rail head and any specially important part of the lines of communication forms a separate sanitary district. Any towns and villages occupied by civil inhabitants may be included in a sanitary district. A medical officer with one sanitary section is appointed to each district, to form the nucleus of a sanitary establishment, which is supplemented by such hired civilian labour as can be obtained, should the mental establishment of the sanitary section be found to be insufficient.

#### SANITARY SQUADS

There is no fixed strength of sanitary squads in our Indian sanitary organisation. They are formed from the sanitary sections as required. Sanitary squads execute the skilled work in connection with disinfection, the provision of pure wholesome water, including its collection, distribution and storage, construction of improvised night soil and refuse incinerators, etc. One or more of the men are specially detailed to supervise the work of permanent fatigue parties or mental establishments employed for conservancy or other work in connection with sanitation. If a camp or road post has a railway station under military control, the squad exercises sanitary supervision over the water supply to the troops passing through, and over the conservancy arrangements generally.

#### SANITARY POSTS

These are formed at various road posts, camps, and rail posts (or rest camps) along the lines of communication. The Post Commandant (or Rest Camp Officer) is responsible for the sanitation of the post. A squad is to be detached from one of the sanitary sections, and will supervise as well as prepare the sanitary arrangements of the post. They are assisted by the ordinary camp police of units which arrive at the post (at the rate of 2 camp police per 100 men, including followers). The units occupying such camps will usually have their own sanitary personnel, who should be responsible for the proper sanitary state of the camp during occupation.

One of more sanitary sections are allotted to each line of communication of district and constitute the per

sonnel at the disposal of the officer in charge

The duties of a sanitary section are allotted by the officer in charge and comprise—Supervision of water-supplies, including protection, purification, and distribution.

supplies, including protection, purification, and distribution, all apparatus needed for these purposes are in charge of the section, supervision of food supplies, cooking and slaughtering places, and disposal of all waste water at rail heads, camping grounds, or roadposts on the lines of communication, supervision of ablution places, and disposal of all waste water thereof, in camping grounds, rail-heads, road-posts, rest stations, etc., on lines of communication, night soil conservancy, refuse disposal, cleanliness of camps and animal lines at rail heads, camps, road posts, etc., sanitation of camps of hired transport, camp bazaars, railway stations, camps and sites for troops passing through, sanitation of roads between camps or posts and disposal of carcasses, carrying out of practicable sanitary schemes which are beyond the power of regimental sanitary detachments, and act as sanitary police, having the powers of military police, and wearing armlets marked "M P"

If a line of communication of district contains a town of villages the officer in charge alranges for the inspection of these places by non-commissioned officers and men of the sections. The actual personnel employed will depend on the temper of the inhabitants, the proximity of the town or village to the troops, and the general sanitary condition of the places at the time. If the buildings are made use of for the location of troops and for the formation of rest and convalescent

camps, a strict sanitary supervision of the civil inhabitants is required, and special arrangements also are made for the provision of sanitary appliances to be used by the troops and convalescents, fatigue parties employed, when the menial establishment of the sanitary section is insufficient for this conservancy work, must also be supervised by one or more men of the sanitary section. Sanitary supervision of railway stations forms an important duty of the sanitary sections—pure water must be supplied to troops passing through, and the conservancy arrangements generally will receive constant attention.

As soon as mobilisation is ordered, or if necessary, in anticipation of such order, the general officers commanding divisions are informed as to the number of sanitary sections they are to provide, as well as the destination of each, and the date they are required there. On receipt of these orders, the requisite menial establishments for each section is entertained, preliminary arrangements will have been previously made for this by general officers commanding divisions, the sections formed, equipped and despatched under their own medical or combatant officers. On arrival at their allotted areas the sanitary sections forthwith take up such sanitary duties as may be ordered, and receive any transport required. It is of great importance that sanitary sections have everything ready before the arrival of the main bodies at the various camps, hence it is necessary for them to proceed with the most advanced troops

The regimental sanitary detachments of peace and war, and the sanitary sections for war, are new organisations that promise to be of inestimable use in the reduction of disease during our frontier wars in the future. They, or some modification of them, are applicable to all troops in campaigns in tropical climates. We may say that our present sanitary organisation in India had its real birth after our South African War, that its growth has been continuous, and that in its present state of development, it forms one of the most efficient services of the kind that has been organised in

the tropics

Whilst the medical and field service regulations form the bases of our sanitary work in peace time in canton ments and on field service, each cantonment and each campaign has its own local conditions and circumstances which render it impossible for any code of regulations, no matter how comprehensive, to embrace all possible contingencies, hence medical and sanitary officers will often have to exercise their own judgment as to how to deal with conditions arising unexpectedly and not provided for in the Regulations

# A OVERCROWDING IN BARRACKS ON TUBERCULAR AFFECTIONS AMONG GURKHAS

B1 C H SWITH, MD, IRCSE,

CAPT, IMS,

6th Gurkha Rifles

Or my arrival in this country my inspections of lines, bariacks, etc., were only performed, I am afraid, under a stern sense of duty, very little real interest being displayed in this part of the work. From conversation with my brother officers I came to the conclusion that this attitude was not confined to myself. Of course the importance of this part of the work is well-known to all, but as the results are not nearly so striking is those of the medical and surgical work in the wards the medical officer is very liable to regard it as less important than his ward work

The following short note it is hoped, will bring graphically before the medical officer the importance of this work in connection with tuberculosis, if only from the selfish point of view of saving himself the trouble of the treatment, isolation, etc., of these cases

It is a popular opinion that the Guikha is an ındıvıdual who is extremely prone to all tubercular affections, and do what you will for him he will still contract this trouble. This, no doubt, is to a certain extent true, but I think it has been somewhat exaggerated The Gurkha differs from the sepoy of other Indian regiments in that he lives in a climate which, for four or five months in the year, is extremely cold In these districts tubercular affections are by no means confined In the Abbottabad neighto the Guikha soldiei bourhood tubercular affections seem to be fauly common among the civil population during last year in Chitral there were several Guikhas with physical signs showing considerable involvement of the lung and numerous tubercle bacilli in the sputum, who, under treatment, made a good recovery, and when invalided five months later showed no signs of active trouble in the lung and every sign of good nutrition

These facts seem to show that the Gurkha is not such a very susceptible person to tuberculosis as popular opinion would make him out to be

In the autumn of 1911 the Gurkha battalion of which I am the officiating medical officer marched from Abbottabad to Chitral barrack accommodation in the former station is distinctly good, better in many respects than that of many Indian regiments in the plains In Kila Drosh and Chitral, as would be expected. where men are clowded into a fort, the first object of which is defensibilty, it is very much the reverse Here the barracks are bad in regard to ventilation, light and size In several of the barrack rooms only 341 cubic feet of air space is allowed per man The beds are so close to one another that it is difficult and often impossible to walk between them On a winter's night, if a surprise visit be made to any of these 100ms, the air is found to be distinctly foul.

In this battalion during the year previous to marching to Chitial the following cases of tuber-culosis occurred —

Tuberculosis of lung	2
Tuberculosis of the cervical glands	. 1
Total	3

Contrast these figures with those of the following twelve months in Chitral:—

Tuberculosis of the lung Tuberculosis of the cervical glands Tubercular peritonitis Tubercular arthritis	7 2 1 1
Total	7 1

Before leaving Abbottabad, every man, who had been in hospital during the previous six months, was carefully examined, and all suspicious cases left behind at the depôt. So all men who went to Chitial were presumably free from disease

A most interesting point is brought out by noting the date on which these various tuber-cular cases were admitted to hospital. The battalion arrived in Chitral at the end of September

The first case was admitted in December
The second ,, ,, ,, January
The third ,, ,, ,, February
Four cases were admitted in March
Four ,, ,, ,, May
During the following months no case was

admitted to hospital

Let us now consider the climatic conditions during these various months

Up to the end of October the climate is quite pleasant, from the middle of November to the middle of March it is bitterly cold and the men naturally try to keep warm by filling up every opening possible in the barrack rooms. From the middle of May to September the whole battalion was outside the fort under canvas.

If these two factors be compared, viz the date of development of the disease, and the chimatic condition at the time, it shows in a very graphic manner the effect imperfect ventilation has on the development of these tuber-cular affections

Now comes the consideration—can the medical officer take any adequate measures to combat tuberculosis in his regiment. Of course, if the barrack accommodation is bad he can recommend alteration of, or the building of new barracks. Of course, this is usually impossible owing to expense, etc. But much may be done by seeing that windows, doors, etc., are kept open at night and not tightly closed as is usually the case.

In other infective diseases, as enteric fever, strenuous exertions are made to discover and eradicate any possible source of infection. This is very rarely done in the case of tuberculosis, all measures being directed to the improvement of ventilation, etc. Why should not attempts be made to eliminate these sources of infection?

Let us consider a few ways in which the tubercle bacillus may be distributed

The Guikha, like most natives, is a confirmed spitter and has no objection to depositing his sputum on the barrack room floor. The importance of this source of infection has been fully realized in Europe as can be seen from the stringent regulations regarding spitting in the street, tram cars, etc. But no attempt seems to have been made to stop it in the Guikha sepoy. It is useless to expect the Guikha not to expectorate, and equally hopeless to expect

him to get out of bed at night and go out into the cold to spit. The only thing is to provide him with some kind of receptacle placed so near his bed that very little trouble is necessary to use it. Cheap gamlahs might be provided and efforts made by the British and native officers to see that they were used. A certain amount of care would also be necessary to see that these gamlahs always contained some form of antiseptic. It is a common sight in hospital to see a sputum gamlah swarming with flies owing the antiseptic having dired up. These flies no doubt help considerably in spreading the infection.

When enteric fever is prevalent in a regiment prolonged and tedious examinations are made to detect the presence of "carriers" Why should not some steps be taken to detect those early cases of tuberculosis who being still well enough to do their work, are busily infecting their fellows?

All Guikhas reporting sick with fever should be regarded with great suspicion. Almost invariably if a tubercular patient's medical history sheet be examined it will be found that before the diagnosis of tuberculosis was made he had one or two admissions for fever which is diagnosed as malaria or pyrexia of uncertain origin. Probably these attacks of fever were the result of the early tubercular trouble which was not detected, and the man was sent back to the lines to spread infection among his fellows. The possibility of tubercular trouble being present in these "fever" cases should always be kept in mind.

As a help in the early diagnosis of these cases I have found Von Piquet's cutaneous reaction of very great help. In two obscure cases, owing to a positive Von Piquet's reaction, a diagnosis of tuberculosis was made in spite of the fact that the physical signs were by no means convincing Some months later the diagnosis was confirmed by the appearance of well marked physical signs and tubercle bacilli in the sputum

So much for the man who reports sick and so comes under the eye of the medical officer, can we not make some attempt to detect the man with early tuberculosis who still feels well enough to do his work?

A careful examination of the chest of every man in the battalion would be exceedingly tedrous and of very little value. The early diagnosis of lung tuberculosis is usually a matter of prolonged observation as regards pulse, temperature, etc. If an examination of the whole battalion is decided on why should not a Von Priquet's reaction be performed on each man? It is easily and quickly done and subsequent ill effects seem to be non-existent. Of course like all other reactions it has its fallacies, but if all men showing a positive reaction were taken into a hospital and carefully watched as regards their temperature,

pulse, nutrition, etc., most of the tuberculous cases would be detected

Lastly, a few words might be said about the isolation and invaliding of detected tubeicular

It is the practice in most Indian troops hospitals to isolate those suffering from lung tuberculosis, as separate buildings are not often available, tents are used for this purpose tents are often at some considerable distance from the hospital, and so are not very easily efficiently supervised by the hospital authorities Hence this isolation is not always as complete as it is supposed to be, the patient holding large receptions of his various friends, who all sit in Here again sick attendants the tent with him should be warned as to the importance of using the gamlah for expectoration and care should he taken that a sufficent quantity of some antiseptic is kept in each

Owing to this difficulty of efficient isolation it is important to get iid of these cases by means

of invaliding as soon as possible

Invaliding boards often show great reluctance to invaliding those cases in which tubercle bacilli have not been found In many cases of undoubted tuberculosis bacilli are very few, and are sometimes missed altogether Such cases when brought before the invaliding board have often been under treatment for some time and sometimes show no signs of active disease The board is very apt to doubt the existence of the disease and refuse to invalid the case necessary invaliding is of course to be avoided, but of the two evils it is worse to send a man back to the lines to spread infection among his fellows than to occasionally invalid a man unnecessarily

## Mirror of Hospital Practice.

REPORT ON CASES OF LEPROSY TREATED WITH LEPROLINE DURING 1911 12 IN THE BILASPUR DISTRICT.

> BIT C RUTHERFOORD, MD. CAPTAIN, IMS,

Civil Surgeon, Bilaspur, C. P.

THIRTY-two cases in all were treated, of whom all were natives of India

One case was received from the Mission Asylum in Mungeli and was treated in the Main Dispensary at Bilaspur, the others were all immates of the Asylum at

Champa and were treated there
Of the thirty-two cases, twelve absconded before
their condition on the termination of treatment could be recorded and are therefore excluded from considera-

tion in the report

Of the remaining 20 cases, nine were males and two were juveniles under 15 years of age All were of very lon caste

Fifteen cases were treated for a period of 153 days the remainder for lesser periods. The shortest period of treatment was 100 days

One case in which there was practically no reaction to treatment received doses of vaccine varying from 25 to 4 cc and case No 13, a girl of 10 years of age, received a regular dose of 0.58 cc All the other cases received, on every occasion, a dose of 10 cc, except one case as shown in table I

Injections were usually given at weekly intervals never at shorter ones Longer intervals were due to such causes as non-availability of vaccine, absence of the patient on leave, development of an abscess at the site of a previous injection, confinement, an attack of small-pox, etc The following table gives the total number of injections (doses) and total quantity of vaccine injected in each case

Total Total quantity Total period levioline of treatment	1
No of injec tions leptoline of treatment injec ed in c c in days	Remarks
1         15         50 5         100           2         20         153           3         16         16         153           4         16         16         153           7         20         20 5         153           9         15         16 5         153           10         18         18         154           11         20         20         153           12         20         20         153           13         20         12 7         153           14         20         20         153           16         20         20         153           19         18         18         153           22         19         19         153           25         19         19         153           26         13         13         115           28         19         19         153           29         11         11         124           31         11         11         124           31         14         14         146	First 2 injections 1 75 c c Rost Do  First 2 injections each 1 c c Rost

The method pursued in recording and treating the cases was the following

Printed forms were made out on which each item of interest in a case of leprosy would be recorded under its proper heading without the probability of its omission through oversight

A sample form is attached to this report in order to obviate the necessity of a long description beginning the treatment of each case full particulars Weekly injections were recorded on one of these forms of vaccine were then given, the morning and evening temperature chart being written up daily

The body weight, dose of vaccine given or reasons for omitting the injection were also recorded each week on

the temperature chart.

In case No 1, a written record of the patient's condition was also maintained, entries being made from week to week This was the only case in which it was possible to attempt this because it was the only one under my continuous personal observation

It will be noted that there are headings and sub-

headings for every system of the body

The great majority of these headings were filled in after careful examination in each case but it was not possible to do so in all cases

For instance, case No 1 was the only one in which it was possible to make a complete examination of the blood and in no case was examination of the pelvic organs of female patients attempted After the termination of treatment a similar form was again filled in but special examination was confined to the principal organs and to those organs or tissues specially involved in leprosy

The form was made especially full because it was desired to conduct a simultaneous inquiry as to the involvement of organs other than those to which reference is usually made in the text-books, eq, the thyroid gland, principal reflex arcs of the nervous system and less important organs of special sense such as those of smell, taste and hearing. Some interesting observations were made in this connection, such as the frequency with which the knee jerks are abolished or diminished in leprosy, but as they are not directly within the scope of this inquiry, special reference will not be made to them

Having in this manner obtained a clinical record of each case the next step was to make a short connected summary of each, describing the symptoms present before treatment, progress and treatment and alterations in symptoms for better or worse found on examination after treatment

In addition to this summary of each case a chart of progress for each symptom in each case has been made out, a copy of which is attached. In this chart symptoms which were unchanged have been recorded in plain type, those in which improvement occurred in thick type, and those in which deterioration occurred in a lighter one. The presence of a symptom is indicated by the letter P and its absence by the letter A

An attempt has been made to record degrees of severity by the addition of numerals to the sign thus +, +2, +3+4 Examples ulceration in the masal cavities absent before and extremely severe after treatment would be recorded in the appropriate column in light type thus A, whereas extensive, areas of tactile anæsthesia which were present before but absent after treatment would be recorded in thick type, thus A

This chart has been compiled in order to facilitate a numerical estimate of the degree of benefit received by each patient, and of the change, if any, in each particular symptom in the total number of patients in which it was present

The following is a summary of the deductions made from it -

TABLE No 2, gives the total number of symptoms, improved, unaltered and deteriorated, case by case, excluding symptoms which were not examined for again on the conclusion of treatment and the presence of absence of acid fast bacilli in nasal or other smears, deductions from which would not be of clinical value

TABLE No II

				£
Case No	Total No Symptoms	Total No Symptoms Improved.	Total No Symptoms Unaltered	Total No Symptoms Deteriorated
1 2 3 4 7 9 10 11 12 13 14 16 19 22 25 26 28 29 31 32	9 10 10 11 8 11 9 8 3 10 5 8 16 8 16 8 10 17	0 4 1 1 1 1 2 2 2 1 1 2 2 3 3 0 0 2 2 1 2	953354550524055444112	01074552141113542133
Total	196	31	100	- 65
Percent age on 1st column	100	15 8	51 02	33 1

Now as to the indications afforded by this table It will be seen that—

In only three cases did the number of symptoms which improved under treatment exceed those which deteriorated, that in three cases the number of each of these classes of symptoms were equal and that in the remaining fourteen cases the symptoms which had got worse were more numerous than those which had im proved and that in eighteen out of the twenty cases the symptoms which remained in statu quo ante exceeded in number those in which improvement occurred, and that in ten of the cases they exceeded those in which deterioration occurred, and that in every case the sum of the unimproved and deteriorated symptoms exceeded—that of the symptoms improved

Taking the total symptoms the ratios are very closely Improved symptoms deteriorated symptoms unaltered symptoms 1 2 3

Now to contrast these results with those obtained from the clinical summaries of cases

Two cases were considered not to have changed appreciably in any way, in three cases it was impossible to say whether improvement or deterioration was the greater and in the remaining fifteen cases deterioration was indubitable. In other words the results of the two methods agree very closely and shew that the great majority of the cases deteriorated under treatment.

If these deductions are accepted the question immediately arises "was the treatment directly responsible for the deterioration in the condition of the majority of the cases or was this only such as might have been expected to occur in the same period if no treatment had been adopted?"

Only a very close study of a large number of cases of leprosy extending over a prolonged period or, what might have been done in this experiment but was not wit, the observation of a greater number of cases as controls, could answer this question

Had improvement occurred in the majority of cases the results might have been criticised on similar lines

Speaking from clinical experience I consider that the deterioration in the condition of the majority of the cases was due to the natural progress of the disease and that the treatment had no influence for good or evil

In case No 26 the deterioration during the course of treatment was extraordinary and one cannot help thinking that the treatment was largely responsible although the superadded ringworm infection was largely responsible for the truly appalling condition of the patient's skin at the time of the final examination

It must be admitted that the consignment of the cases to the care of a sub assistant surgeon and non-medical missionary from the time of the administration of the first dose of leproline until the conclusion of the treatment caunot be said to have given the remedy altogether a "fair chance," and had it been possible for me to have seen the patients at regular weekly intervals a good dearinght have been done by alterations in the size and intervals between the doses. Still the quantities used and the periods between the doses were those recommended so that too much emphasis cannot be laid down on these points, particularly when it is remembered that case No 1 was under careful observation throughout the period of treatment

In conclusion, I would thank the Revd P A Penner, Superintendent of the Champa Leper Asylum and Sub-Assistant-Surgeon Maioti Ram Krishna of the Janjgir Branch Dispensary for having so efficiently carried out the routine treatment and record of these cases

# SHORT SUMMARY OF CASES TREATED

Case No 1 -Itwari, Native Xtian, o, aged 23

Date of admission 1st November 1911, duration of

treatment 100 days

Symptoms on Admission—A few "doubtful" nodules of face A "doubtful" paten of loss of pain sensation on middle of right shin, numerous areas of diminished

# REPORT ON CASES OF LEPROSY TREATED WITH LEPROLINE DURING 1911-12 IN THE BILASPUR DISTRICT

BY CAPTAIN T C RUTHERFOORD, MD, IMS,

Civil Surgeon, Bilaspur, C P



CASE NO 9 -ON ADMISSION



CASE No 22-ON ADMISSION



Case No 19 -On admission



CASE No 31 -ON ADMISSION

pigmentation on tiunk, arms and buttocks Much superficial ulceration on anterior portion left, side of septum of nose and nodule in similar position on light side Thickening of right ulnar and both musculospual nerves

Large leucome of both corne, probably not leprous as had existed from infancy, whereas the history of lepiosy was only of two years' duration

The inguinal lymphatic glands on both sides slightly ındurated and the left supra condylar slightly enlarged Utine showed some squamous epithelial cells (?) of bladdei

Acid fast bacilli found in smears from nose and

excised skin nodules

Diagnosis — Early mixed leptosy

Treitment - Received 15 injections of William's lepioline at weekly intervals the earlier injections being of 2 cc and gradually increased to 4 cc. Februle reaction was very slight, the temperature only once using to 100° and seldom above 99° The weight at first increased by 61bs, probably due to the better diet received in hospital, but subsequently declined and was practical ly the same as on admission at time of discharge

Condition on Discharge - Practically unaltered so, unless the treatment is supposed to have stayed the progress of the disease the patient was not benefitted

Case No 2 - Name Betawan, caste Chamaiin, ♀, aged 28 years

Duration of Disease -6 or 7 years
Symptoms on Admission - Ulcei "due to burn" (? ?) on middle of back of right forearm 2" × 2", doubtful diminution of sensibility to pain on back of right foot, failure to differentiate between hot and cold objects on skin of limbs generally, the dermal pigment was partially atrophied in a patch 2" × 1½" between shoulder blades and over large areas of the lower chest and belly There was looseness and loss of elasticity of the skin of both hands, ie, partial atrophy There was a superficial ulcer of the mucous membrane covering the right middle turbinate bone

Slight thickening of right ulnar nerve present There were large leucome of both corne The right supra condylar lymphatic gland was enlarged, probably

owing to the presence of the above noted ulcer

The 3rd and 4th toes of the left foot had undergone "leprous amputation"

Leprosy bacilli were not found in nasal smears

Diagnosis - Early case of neive leprosy

Treatment and Progress -Treatment was continued for 153 days during which 21 injections of Wilham's lepioline, each of 1 cc, were given The injections were given at weekly intervals except on one occasion when the drug was not available and a fortnight Intermittent fever occurred throughout the treatment, the temperature occasionally rising to over 103°, though seldom over 101°

Condition on Termination of Treatment - the ulcer on the forearm had healed Loss of pain sensation as before, sensibility to heat impressions less than before, the areas of attophied pigment much smaller and less The nasal ulcer had healed intense than before right ulnar nerve no longer thickened. The condition of the eyes was unchanged. The right supra condylar gland was no longer palpable. The patient had gained two pounds in weight. The other symptoms noted at the commencement of treatment were unaltered and no new symptoms had made their appearance

Result of Treatment - Real improvement was manifest in the healing of the nasal ulcer and that of the forearm and in the much more normal appearance of the skin On the other hand, the loss of sensibility pigment to heat had increased

Case No 3 -Parbatti, Chamaiin, Q, aged 28 years

Duration of Disease -14 or 15 years

Symptoms on Admission -A few small nodules on orehead, cheeks and chin, thin scalp hair and very

scanty eyebrows, superficial ulceration with crust formation both sides anterior portion of nasal septum. The right supra condylar and both sets of inguinal lymphatic glands were "bulletty"

The last phalanx of the right great toe and the whole of the last phalanx of the 2nd left toe had respectively undergone "leprous" amputation The patient was six

months pregnant

Leprosy bacilli were found in nasal smears

Diagnosis — Early case, of nodular leptosy
Progress and Treatment—The patient was treated
with William's leproline for 153 days She received
doses of lcc at weekly intervals, except on two occasions when no vaccine was available and again for four weeks at the time of her confinement. Only a very mild reaction was produced, the temperature seldom rising above 99° and never above 101° She lost 2lbs in weight during the treatment, but this may have been due to her confinement

Condition on Termination of Treatment -The nodules on the face were distinctly more numerous than before There was an ulcer on the tip of the 2nd left toe, also distinct loss of painful sensibility and of heat sensation on the backs of both feet, all of which were distinct changes for the worse The nasal ulceration had extended and increased in depth on the septum and the night middle and left lower turbinate bones had become involved On the other hand, the induration and enlargement of the lymphatic glands had disappeared

Summary —Progressive deterioration in nearly all the

Case No 4 -Upasin, caste Telin, ♀, aged 38 years

Duration of Disease -8 of 9 years
State of Admission -Loss of painful and heat sensa tion back of light hand and foreaim and outer suiface left leg and foot Scalp hair thin, eyebrows almost absent, eyelashes scanty The nails of six fingers and four toes were atrophic and of two toes had completely disappeared There was a large bulla on the antero-external aspect of left index finger The skin in general and that of the face, hand and feet in particular was atrophic There was extensive ulceration with crust formation on both sides of the nasal septum near the anterior nares The left ulnar nerve was thickened The left supra condylar gland was enlarged but not indurated The second and third phalanges of the 3rd, 4th and 5th toes of the left foot had undergone leprous amputation

Acid fast bacilli were found in nasal smears. Diagnosis —Well established nerve leprosy

Treatment and Progress -The patient was treated with William's leproline for 153 days receiving 16 injections. of 1 cc each at weekly intervals except on six occasions, when the vaccine was not available. She gained one pound in weight whilst under treatment

The febrile reaction was of a moderate type, the temperature infrequently using above 100° and seldom The fever was of an intermittent type

Condition on Discharge - The area over which loss of painful and heat sensation was present was markedly increased, involving practically all the surface of all four Areas of atrophied skin pigment were now present about the shoulders, whereas the pigmentation had before been normal

The nasal ulceration had increased, the lower and middle turbinate bones on both sides being now involved as well as the area of the septum above described

The patellar tendon reflexes were no longer obtainable, the thickening of the left ulnar nerve was no longer detectable, but this may be considered as an improvement or degeneration according as it was due to regression of inflammation or atrophy of nerve fibres. The enlargement of the left supra condylar gland had disappeared and the bullous areas on the left forefinger had healed, these two phenomena probably standing to each other as cause and effect. The terminal phalanx of the right little finger was in process of amputation.

Summary -Altogether the patient's condition was distinctly worse, the increase in the severity of the majority of the symptoms being very marked

Case No 7 -Snundin, Pankin, ♀, aged 22 years

Duration of Disease - About 5 years

Symptoms on Admission -Loss of painful sensation on back of right foot only The skin pigment was partially atrophied in numerous patches on the chest

There was an "ainhun" like constriction of the 3rd phalanx of the 2nd toe of the right foot

Acid fast bacilli were found in nasal smears

Diagnosis - Early case of nerve leprosy
Progress and Treatment - This patient's treatment lasted 153 days during which she received 20 injections of William's leproline, each of one cc at intervals of one week, with the exception that the first two injections were of Rost's lepioline and of 30 minims each, moreover what should have been the 8th injection The februle was omitted, the diug not being available reaction was of moderate severity and intermittent type, the temperature never rising above 100° The patient lost 1 pound in weight whilst under treatment

Condition on Discharge - Ulcers were present on the

tips of the right foreinger and left ring finger

There was loss of heat sensation over the back of the right hand, the skin pigment was partially atrophied over a much larger area than at the beginning of treatment

The other symptoms were unchanged

Remarks - Distinct deterioration in the patient's condition occurred during treatment

Case No 9 -Ghaitri, Native Xtian, ♀, aged 35

Duration of Disease -- 20 years

Symptoms on Admission -Numerous nodules on face, large ulcer on right great toe, eyebrows all but absent, eyelashes thin, four finger nails and all toe nails partially atrophied, skin of fingers much swollen and that of shins atrophied

Palate exhibited numerous lepromata and the tonsils the same, together with ulceration. In the nose there was much ulceration with crust formation about the anterior portion of the septum and anterior naies

The left inguinal and femoral glands were slightly enlarged

Acid fast bacilli were found in nasal smears

Diagnosis - Well developed nodular leprosy

Progress and Treatment - Duration 153 days, 15 injections each of 1 c c of William's lepioline, except the two first which were of 30 minims of Rost's lepioline Injections at weekly intervals, except that what should have been the 8th and 12th were omitted, vaccine not being available also the 14th, 15th, 16th, 17th and 22nd, abscesses having developed at the seat of one of the previous injections. The febrile reaction was of intermittent type and moderate severity, the temperature never rising above 101°. The patient lost 21 pounds in weight during treatment

Condition on Discharge —The nodules on the face as on admission or worse, loss of painful sensation marked on back of hands, loss of heat sensation on backs of hands, feet, backs of forearms and shins Nails of six fingers, instead of four, as on admission, now affected Patches of diminished pigmentation right side back of

The inguinal glands markedly enlarged, that glandular enlargement worse. The ulcer on the right great toe had healed

Remarks - All the original symptoms had become aggiavated, except that the ulcor had healed and signs of nervous involvement had occurred, the case, original nally a purely nodular one, shewing symptoms of both types after treatment

Case No 10 -Bodhin, Native Xtian, ♀, aged 35 Duration of Disease -6 of 7 years

Symptoms on Admission - Very numerous nodules all over lower face and dorsum of right foot, numerous ulcers, on ulnar side of both hands and left little finger hypertrophy of sebaceous glands of nose, eyebrows absent, eyelashes very scanty, scalp hair very nails of three toes atrophic, skin of fingers swollen

Tongue and palate covered by lepromata, extensive superficial ulceration of latter, uvula destroyed Anterior nares much contracted and much crust forma

tion just inside them Epiglottis ulcerated

The supra-condylar inguinal and femoral glands on both sides were enlarged and indurated, probably due to coexistent scabies. Inflammatory edema of both legs and feet

Acid fast bacilli found in nasal smears and in smears from ulcer on right hypothenar eminence

Progress and Treatment - Duration of treatment 153 days, during which she received 18 injections, each of l c c of William's leproline at weekly intervals, except that four injections were omitted owing to vaccine not being available The patient gained 1 pound in weight during treatment The febrile reaction was mild, the temperature seldom rising above 100° and not very

The type of fever was intermittent.

Condition on Discharge -There were distinctly fewer nodules in the skin of the face and right foot, and all the ulcers had healed

Painful and heat sensation was absent, over practi cally the whole of the legs and arms, whereas the existence of any anasthesia at the time of the beginning of treatment had been very doubtful

The nail of the right middle finger had become The lepromatous patches on the hard palate atiophic had been replaced by scar tissue, but the soft palate was almost totally destroyed. The stenosis of the anterior nares was so great that examination of the nasal cavities was impracticable. There was distinct thicken ing of the right ulnar nerve

The inguinal glands were no longer palpable

Inflammatory a dema of lower legs and backs of fect

unchanged

often above 99°

Remarks - The nodular lesions had undoubtedly improved, being scantier or replaced by scar tissue, but, on the other hand, distinct signs of extensive involve ment of the peripheral nerves had appeared

Case No 11 - Ghasin, ?, Raotin, aged 30 years

Duration of Discuse -About 14 years

Symptoms on Admission - There were numerous nodules on the nose, hips and chin, a few on the forehead and cheeks and the ears much infiltrated. The scalp hair was rather thin and ey obrows almost absent, and all the toe nails, except those of the great toes, parnally atrophied

A single large lepioma covered the middle 11/2" of the alveolar processes of the upper jaw and the anterior 11 of the palate. There was ulceration of the left side of the cartilaginous septum of the nose and the mucus lining of both the anterior naies exhibited lepromata

There was a leproma of the posterior surface of the niglottis. The left patellar tendon reflex was epiglottis unobtainable The right inguinal lymphatic glands were

" bulletty Acid fast bacilli were found in the nasal smears

Diagnosis - Early case of nodular leprosy

Progress and Treatment - Treatment extended over 153 days, during which 20 injections, each of 1 cc of William's lepioline were given The injections were at weekly intervals, except on two occasions when no vaccine was available

The febrile reaction was of intermittent type and mild degree in the earlier and later stages of treatmen being most intense during the middle period of treatment when the temperature frequently reached 101

The patient put on two pounds in weight during treatment

Dısé T	Signs of Renal Disease	Amputa- tion due to Leprosy	Lepromatous Affections of Lymphatic Glands	Affection of Cornea	Case Number
	P (Pyelitis)	A	P	∫ P•	1
cally n	Practi			<b> </b> }	
Nota	A	þя	P	} P*	2
		פין	P	J bi	2
	A	P	P	S A	3
		Р	A	( A	,
	A	P	P	ſ A	4
	1	P	P	A A	4
	$\mathbf{A}$	A	7	γ A	7
		A	A	A S	•
	j	A }	P	f A	9
		A	P²	A 5	ĺ
	A	A	,	S A	10
		A	,	A	10
	A	A	P	∫ A }	11
		A	P	l A	
	A	A	P	{ A }	12
		Ã	A	l A	}
	A	A	A	{ A	13
	}	A	A	l A	
	A	P	<sup>9</sup> Scabies	{ A	14
		P	A	l A	
	A	A	A	{ A	16
		A	A	(A)	

# Synopsis of Symptoms, etc

estes	Loss of Sexual Power	Other Co existent Disease	Presence of Bacillus Lepræ.	Diagnosis as to clinical variety of Leprosy present	Gain or Loss of Weight in lb	
A o change	Λ	Pyelitis	P	Early case of mixed leprosy	Nil	
pplicable	A A	A A	A }	Early case of nerve leptosy	P2	
**	A	A	P }	Early case of nodular leprosy	A2 {	Loss possibly due to differ ance in weight 3 months before and after delivery
**	A	A	P }	Well established nerve leprosy	P1	solote and after delivery
*1	A A A	Scabies Recovered	P }	Early neive leprosy	A1	
,,	A A	fiom	P }	Well developed nodular leprosy developing nervous lesions	A23	
,,	A A	Scabies As before	P }	Well developed nodular leprosy but developed nerve lesions whilst undergoing treatment	Pi	
	,	A A	P }	Early case of nodular leptosy	P2	
		A A	P }	Early case of nerve leprosy	P6	
r		A	P }	Early case of nerve leprosy	P7	
,	A	Scabies A	P }	Well marked case of mixed type	P3‡	
,,	,	A	P }	Early nerve leprosy	A1	

Condition on discharge — The nodules of the face had acreased in number. The left patellar tendon reflex, decreased in number

previously unobtainable, was obtained

The condition of the nose was rather worse than efore treatment. There was some loss of painful senbefore treatment sation on the backs of the feet and loss of heat sensation in the same places and partial loss on the backs of the hands, whereas there had been no loss of painful sensation before treatment

The inguinal glands of both sides were now "bulletty"

The other symptoms were unaltered

Remarks - Nodular lesions were distinctly improved, but signs of involvement of the peripheral nerves appeared under treatment

Case No 12 -Indiamati, ? Patail, aged 20 years

Duration of Disease -One year.

There was a large imperfectly healed ulcer on the back of the left foot which was anæsthetic to heat The eyebrons were very scanty and eyelashes thin Atrophic changes were present in the skin of the hands and shins

There was superficial ulceration on both sides of the

nasal septum

The right uluar nerve was slightly thickened upper concatenate glands on the right side were enlarg ed and indurated

Acid fast bacilli were found in the nasal smears Diagnosis — Early case of an esthetic leprosy

Progress and Treatment - Treatment lasted for 153 days, during which patient received 20 injections, each of 1 cc of William's leproline at weekly intervals except on two occasions when vaccine was not available

Febrile reaction was intermittent in type and mild in degree, the temperature seldom rising above 100° and

only twice above 101°

The patient gained 6 pounds in weight during treat-

Condition on Discharge - A few nodules had appeared on the chin and one at each commissure of the lips

Heat sensation was distinctly delayed on the backs of the hands and feet

All the toe nails of the left foot presented atrophic changes The ulceration of the nasal septum was worse than before, and the inferior turbinate bones of each side were now affected There was much crust formation

On the other hand, the following improvements had

occurred

The ulcer on the left foot had healed

The thickening of the right ulnar nerve could no longer be felt

The lymphatic glands of the upper part of the right side of the neck were no longer palpable.

Remarks - Taken as a whole the deterioration out

weighed the improvement Case No 13 -Chandiamatti, aged 10 years, Telin, 2

Diration of Disease -Probably five years

Condition on Admission — The last phalanges of both great toes were very badly split and ulcerated

The skin pigment was much atrophied over the greater part of the back and in numerous small areas of the chest and trunk The right ulnar nerve was thickened

Leprosy bacilli were found in nasal smears

Diagnosis — Early case of an esthetic leprosy Progress and Treatment — Treatment lasted 153 days, the injections being given at weekly intervals except on tno occasions when no vaccine was available injections were given all of William's lepioline, except the two first which were of Rost's Each injection was of 058 cc except the two first which were of 1 cc

The febrile reaction was intermittent in type and mild in degree, the temperature seldom rising above 100°. The patient gained seven pounds in weight during treatment

#### CONDITION ON DISCHAPGE

Sumptoms of Deterioration - The atrophy of skin pigment was much more marked in degree and general in distribution than before treatment

Both ulnar nerves were now thickened

Symptoms of Improvement -The ulceration of the great toes had healed

Summary - Deterioration greater than improvement Case No 14 -Surja, Raotin, ♀ aged 30 years

Duration - About 10 years

Symptoms on Admission - Many nodules in skin of face and sub-maxillary triangles of neck, ears thickened

Open sinus in left axilla

Painful sensation absent on back of right foot and very much delayed on backs of hands and forearms and on shins Heat sensation absent on backs of hands, Eyebrows practically absent and forearms and feet Four finger nails were practically eyelashes scanty Four finger nails were practically absent. The skin of the hands and feet was atrophic and that of both feet much thickened There was coexistent scabies

There was much ulceration with crust formation on both sides of the anterior portion of the nasal septum

There was marked atrophy of the muscles of the right hypothenar eminence and contracture of the flevor tendons of both little fingers and of the right ring finger, the cervical lymphatic glands of both sides and the right inguinal glands were enlarged and indurated, but this was probably due to the coexistent scabies, The last phalanx of the right ring finger had undergone leprous amputation, and there was marked enlargement of the first interphalangeal joint of the left forefinger

There were distinct signs of atheroma and of enlargement of the heart and the liver edge was 3" below the costal edge, but there were no signs of valvular or renal

disease nor failure of compensation

There was chronic inflammatory cedema of the feet Acid fast bacilli were found in nasal smears

Diagnosis - Well marked case of 'mixed" type of

leprosy

Progress and Treatment -Treatment lasted for 153 days, during which twenty injections each of lcc of William's leproline were given at weekly intervals, except on two occasions when vaccine was not available The febrile reaction was of intermittent type and mild to moderate in degree, the temperature occasionally rising to 101° but not often above 100°

The patient gained 34 pounds in weight during treat ment

Condition on Discharge -The following were the symptoms which had changed -

Deterioration - Painful and heat sensation were absent on the backs of the feet, hands and forearms and on the shins

The sebaceous glands of the nose were enlarged There was a large white scar on the back of the left forefinger and hand The ulceration and crust formation, in the nose had increased and the anterior nares were markedly stenosed

There was thickening of both ulnar nerves.

Improvement - The sinus in the axilla had healed. The enlargement and induration of the inguinal glands had disappeared

Comment -The symptoms of deterioration markedly outweighed those of improvement, and the nodular lesions were unaffected

Case No 16 - Sachmin, Chamarin, Q aged 40 years Duration of Disease .-- About five years but statement unreliable

Symptoms on Admission - There was a superficial ulcer of the tip of the right thumb and deep fissures in the skin of both hands The skin of the hands was "glossy."

There was loss of pain and heat sensation on backs of, forearms, hands, feet and on the toes and shins

The eyebrows were thin

Pigment was partially attophied in numerous large areas of the skin of the belly and back

Leprosy bacilli were found in nasal smears

Diagnosis - Early nerve leprosy

Progress and Treatment -Treatment lasted 153 days, during which 20 injections, each of 1 cc of William's lepioline, were given at weekly intervals, except on two

occasions when vaccine was not available

Februle reaction was intermittent in type and, in the early stages of treatment, severe in degree, the temperature sometimes rising to over 103°. In the latter stages of treatment the ranges of temperature was much less but the last injection produced a well marked reaction.

#### CONDITION ON DISCHARGE,

Deterior ation — There was a deep ulcer covering the whole of the radial side of the right thumb, also a superficial ulcer of the back of the left forefinger

Improvement —The fissures in the hands had healed, areas of diminished pigmentation were less extensive

and intense on the belly

Summary —Deterioration greater than improvement Case No 19—Budla, Kewat, of aged 28 years

Duration of Disease -" Many years"

Symptoms of Admission.—A large ulcer on back of right hand over 2nd metacarpal bone, painful sensation was delayed on the back of the right hand. Marked diminution of heat sensation on the backs of both hands, fore arms and feet

The finger nails of the right hand (exclusive of that of

the thumb) were all more or less atrophic

There were numerous areas of diminished pigmenta-

tion on the chest, neck and face

There was slight ulceration of the right middle turbinate bone and extensive ulceration of the left middle turbinate and of the left side of the anterior portion of the "septum nasi"

There was slight thickening of the epiglottis

Both ulnar nerves were thickened

The right supra condy lar and axillary lymphatic glands

were enlarged but not indurated

The tips of the index, middle and fifth fingers of the right hand and two distal phalanges of the left second toe had undergone "leprous" amputation

Acid fast bacilli were not found in nasal sme us

Diagnosis —Early nerve leprosy

Progress and Treatment —Treatment lasted for 153 days, during which the patient received 18 injections of William's leproline at weekly intervals, except that the injections were omitted on four occasions when vaccine was not available. Febrile reaction was mild in degree and intermittent in type. The evening temperature once rose to 102° but seldom over 101° and usually fluctuated between 100° and 101°.

The patient had neither gained nor lost weight on the

conclusion of treatment

#### CONDITION ON DISCHARGE

Deterioration — New ulcers had appeared on the tip of the right little finger and left great toe. The cycliows had become rather thin. The knee jerks were no longer obtainable. The supra-condylar lymphatic glands of either side was enlarged but not indurated, while the inguinal lymphatic glands of both groins were indurated but not enlarged.

Improvement —The old ulcer had healed The pigmentation of the skin of back had become normal

# ALL THE ULCERS IN THE NASAL CAVITY HAD HEALED

Neither of ulnar nerves were any longer thickened Remarks—The complete healing of the masal ulcers and, to a less extent, the reappearance of the skin pigment in the affected areas of the back were striking phenomena but otherwise any real improvement was doubtful

Case No. 22.—Sahomam, Chaman, & aged 17 years

Duration of Disease -" Since childhood"

Symptoms on Admission—Numerous nodules on ears, lips and face—The hands and fingers were puffy but not nodular—Complete loss of heat sensation on backs of feet and shins—The sebaceous glands of the nose were atrophied. Eyebrows very thin and eyelashes scanty

The skin of the class exhibited many small areas of diminished pigmentation. Practically the whole interior surface of the mouth was covered with large nodules, of which those situated on the hard palate were breaking down.

Both anterior naies were much stenosed owing to infiltration of the mucous membrane but no nasal ulcera-

tion could be seen

Both ulnar and both musculo spinal nerves were thickened and the muscles of the hypothenai eminence of the left hand atrophied

The supra-condylar glands on both sides were enlarged

and indurated

Both epididymes were indurated and the body of the left testis one mass of induration

Acid fast bacilli were not found in nasal smeais

Diagnosis - Well developed mixed type of leprosy

Progress and Treatment —Patient was under treatment 153 days, during which he received 18 injections, each of 1 cc of William's leproline, at weekly intervals, except on two occasions when the vaccine was not available

Februle reaction was mild to moderate during the earlier course of treatment but became more severe later, the temperature occasionally rising to 102°. It was of the intermettant to be throughout

the intermittent type throughout

The weight had increased by 1/2 pound only at the end of treatment

#### CONDITION ON DISCHARGE

Improvement —The nodules in the skin of the face and ears had disappeared

No thickening of the ulnar or musculo spiral nerves

could be felt

Determation —Not only the backs of the feet and shins but also the backs of the forcarms and hands had now lost heat sensation and painful sensation was also absent over the same areas, whereas there had been no loss of pain sensation in these areas formerly

All the toe nails and those of the left 4th and 5th finger had become atrophic Neither knee jerk was now obtainable. The body of the right testis was now indurated.

Remails—Except that the nodules had disappeared from the face and that the thickening of the ulner and musculo spiral nerves could not be felt, all the lesions had made steady progress for the worse or were un altered, in other words, deterioration far exceeded improvement

Case No 25 -Gulab, Native Xtian, & 24 years

Duration of Disease -Three years

Symptoms on Admission -Considerable delay in the perception of painful stimuli on the back of the right foot

Heat sensation much reduced on backs of the hands and forearms, feet and shins

There was atrophic rhinitis

The right knee jerk was unobtainable and the left knee jerk sluggish, reaction of pupils to light very sluggish and flomberg's sign present

The right ulnar nerve was markedly thickened. The muscles of the themar and hypo themar emmences, in terosser and lumbricales of both hands were markedly wasted, as were the long flexor tendons of all the digits of the hand except those of the right thumb and 1st and 2nd fingers.

There was chronic inflammatory edema of the right foot. Acid fast bacilli were not found in nasal smears

Diagnosis - Well developed nerve leprosy

Progress and Treatment —Treatment lasted 153 days, during which 18 injections, each of 1 cc of William's lepioline at weekly intervals were given, except on two occasions when no vaccine was available

Februle reaction was moderate degree and intermittent

ın tyne

Patient gained six pounds in weight,

#### CONDITION ON DISCHARGE

Deterioration - Painful sensation was delayed on the backs of both feet

There was distinct atrophy of pigment in large areas on the face

There was a small ulcer on the left side of the anterior portion of the bony part of the nasal septum

Immovement -NI

Remarks - The symptoms noted at the beginning of treatment were in the same condition at the time of discharge and some new symptoms, as just noted, had appeared

Case No 26 -Mahesh, Marai, & aged 28 years

Duration of Disease -14 or 15 years

Symptoms on Admission - Painful sensation was diminished on the backs of the feet, heat sensation was absent on the same areas and on the lower parts of the legs and diminished on the backs of the hands

There were numerous superficial ulcers both sides of the anterior portion of the nasal septum Both hands exhibited a slight degree of "main en griffe" due to the wasting of the muscles usually concerned in the production of that condition In both feet the extensor breves were wasted, most markedly on the right side

The meta tarso phalangeal joint of the right 5th toe was anchylosed

Acid fast bacilli were not found in nasal smears

Diagnosis - Well developed nerve leprosy

Progress and Treatment - Treatment lasted for 115 days, during which the patient received 13 injections, each of 1 cc of William's nastin, each at weekly intervals, except on three occasions when the vaccine was not available

The febrile reaction was mild in degree except from about the 70th to 90th day of treatment during which the daily range sometimes exceeded 5 degrees

The patient lost half a pound in weight during treatment which was discontinued because of the extremely severe eigthematous lesions which developed almost all over the skin surface

Condition on Discharge - There were numerous small superficial ulcers on both hands, the left foot and right arm There were also similar ulcers on the back, probably produced by scratching Painful sensation was absent on the backs of the feet and hands and in the areas where heat sensation had formerly only been diminished it was now absolutely lost. The patient was now an apprlling object, the greater part of the surface of the body being covered with desquamating patches which were deeply pigmented. These patches did not appear to be leprotic but due to an infection with some lingworm. The right middle turbinate bone of the nose was now much atrophed. bone of the nose was now much atrophied

The knee-jerks were no longer obtainable

The muscular wasting of the hands and forearms was more marked than before treatment and the "main en griffe" consequently more obvious

There was a large ulcer of the upper quadrant of the right cornea with consequent pannus and congestion of the bulbar conjunctiva

Both epididymes were indurated

Improvement -Nil

Remarks -The patient was very much worse than before treatment, steady deterioration of practically all the lesions having occurred and new ones having made their appearance

Care No 28 - Bhoshah, Native Christian, & aged 15 14 years

Duration of Disease - Unknown There were numerous nodules on the nose, lips, chin, ears, fingers and toes and a few nodules on the eyebrows and forehead. The ears were much enlarged. The skin and subcutaneous tissues of the fingers and toes were much thickened

The sebaceous glands of the nose were attophied There was an ulcer on the outer side of the left foot The eyebiows and pubic hair were very thin

There were very numerous nodules on the alveolar processes of the maxillae, the soft palate, the fauces and tonsils also a large ulcer on the soft and hard palate Both anterior nares were very greatly stenosed, particularly the left

The upper part of the laryny above the colds was

much infiltrated

The submaxillary and upper concatenate lymphatic glands on both sides were enlarged and indurated, as were the inguinal and femoral glands of both sides

Acid fast bacilli were found in the nasal smears

Diagnosis - Well marked case of nodular leprosy

Progress and Treatment — Treatment lasted 153 days during which 19 injections, each of 1 cc of William's leproline, were given, at weekly intervals except on two occasions when vaccine was not available.

The patient gained 5 pounds in weight whilst under treatment Febrile reaction was intermittent in type and mild in degree, except during the last month of treatment when the temperature frequently rose to above 101° and occasionally to 102°

## CONDITION ON DISCHARGE

Improvement - The nodules in the fingers had disappeared and had been replaced by atrophic skin

The ulcer on the left foot had healed

Deterioration - Painful sensation was absent on the backs of the hands and feet and heat sensation delayed in those areas

Numerous large nodules had appeared on the tongue Both ulnar nerves were distinctly thickened

Remarks - Deterioration was greater than improvement, and signs of involvement of the peripheral nervous system were present after treatment though they had been absent before it

Case No 29 - Sorbar, Chamar, d aged 30 years Duration of Disease -14 or 15 years

Symptoms on Admission -A few nodules on the forehead and nose Heat sensation much diminished on backs of feet and hands Eyebrows scanty There was extensive ulceration on both sides of the nasal septum, anterior portion of floors of nasal cavities and of the inferior and middle turbinate bones of the right side

The lymphatic glands of the left submanillary triangle were indurated and that above the right elbow enlarged

but not indurated

Both epididymes and the body of the right testis were indurated

Acid fast bacilli were found in nasal smears

Diagnosis - Mixed leprosy of moderate severity

Progress and Treatment -Treatment continued over a total period of 124 days during which 11 injections, each of 1 cc of William's lepioline were given On two occasions when vaccine was unavailable treatment was suspended and again discontinued from the 93rd day till 122nd day, as the patient developed abscesses at the sites of former injections

Februle reaction was intermittent in type and mild in degree, but the temperature rose occasionally above 102° though usually not much over 99°

The patient gained 8 pounds in weight during treat

# CONDITION ON DISCHARGE

Improvement -All the nodules in the skin has disappeared Heat sensation was normal. The left submaxillary lymphatic glands were no longer indurated

Deterioration -Both ulnar nerves were distinctly thickened

The inguinal lymphatic glands of both sides were indurated

Remarks —Improvement was greater than deteriora tion and the reappearance of sensibility to heat stimuli in the previously insensitive areas and disappearance of the nodules in the skin quite gratifying

Case No 31 -Sukram, Native Christian, of aged 40 years.

Duration of Discase -14 or 15 years

Condition on Admission -Nodules were very numerous all over the face, ears and scrotum

There was an ulcer on the back of the right thumb, ulcers on light foreinger, one on light ling finger and one on the inner side of the right forearm

There were numerous scars of healed ulcers of the left hand and fingers

Reaction to painful stimuli was extremely sluggish wherever they were applied, but the intelligence was deficient, and hence there was difficulty in estimating the severity of this symptoni

There was no reaction to heat stimuli when applied to backs of feet, hands, forearms and lower legs

The sebaceous glands of the nose were hypertrophied The eyebrows were absent, the eyelrshes very scanty and moustache and beard absent

All the finger nails were more or less atrophied and some scars of old ulcers were quite white and devoid of pigment The skin and subcutaneous tissue of the hands and feet was much indurated and thickened and the skin of the general body surface atrophied, wrinkled and melastic

There was a very large perforation of the masal septum, and the walls of the masal cavities generally were covered with crusts. There was ozena

The upper part of the larynx above the level of the cords was much infiltrated, but the latter could not be seen

The knee jerks could not be obtained

With the exception of the right inguinal and of the popliteal glands, all the superficial lymphatic glands were enlarged and indurated

The terminal phalanges of the middle and little fingers of the right hand had undergone "leprous" amputation The body of the left testis and both epididymes were distinctly affected

Acid fast bacilli were found in nasal sniears

Diagnosis -A case of well developed mixed leptosy, the nodular lesions predominating

Progress and Treatment - The total period extended over 137 days, during which 14 injections of William's leproline were given, each of I cc and at intervals of No injection was performed from the 43rd till the 57th day, vaccine not being available, nor again from the 73rd till the 86th day for the same reason nor from the 87th till the 122nd day as the patient was suffering from an abscess produced by an injection

Februle reaction was intermittent in type but of rather severe degree, the temperature fairly often rising above The patient suffered from a mild attack of smallpox from the 110th day of treatment for a fortnight He gained 7 pounds in weight during treatment

## CONDITION ON DISCHARGE

Improvement -Nodules very distinctly fewer Enlarge ment and induitation of the superficial lymphatic glands had disappeared except in the case of the right willary and femoral and left inguinal glands, all of which, though still enlarged, were no longer indurated

Deterioration -Both ulnu nerves were now thickened The terminal phalanges of the right fore and ring fingers had undergone "leprous" amputation since the first

Remarks - Improvements outweighed deterioration, though the evidence of the latter, 1c, amputation of phalanges was distinct

Case No 32 -Sadhram, Native Christian, & aged 35 years

Duration of Disease - Unknown

Symptoms on Admission - Very numerous nodules all over face, scrotum and penis, enlarged ears, "Leonine"

Large, partially healed, ulcer over the metacarpo phalarged joints of the 1st, 2nd and 3rd left fingers

Heat and painful sensation delayed over backs of

hands and feet and lower parts of legs
Sebaceous glands remulably hypertrophied all
over face Eyebrows lacking, eyelashes very scanty, no moustaches or beard, pubic hair all but absent General surface of body hairless

Nails of the 2nd and 3id left fingers and of the light ring finger atrophic and of right forefingers absent

There was a diffuse mottling, due to partial atrophy of the pigment, of the skin of the trunk and inner aspects of both thighs and calves

There were numerous white scars on the hands and fingers The skin generally was atrophic, inelastic and There were nodules, ulceration and contrac wrinkled tion of the soft palate, uvula and fauces

There was a very large perforation of the nasal

septum with crust formation and ozena

The put of the laigny above the cords were much infiltrated, the vocal cords were nodular but moved well

Both ulnar nerves were thickened

The left eye presented a large anterior staphyloma with a large leproma of the cornea

One of the right axillary glands was enlarged and indurated as were the supra-condylar, inguinal and femoral lymphatic glands on both sides

The terminal phalanges of the left fore and ring fingers had undergone "leprous" amputation

al phalanx of the left little finger attrophied, the second phalanx of The terminal was partially the left thumb was partially dislocated and atrophied The right forefinger and ring fingers had undergone "leprous amputation" through the 1st and 2nd interphalangeal joints respectively whilst the 1st interphalanged joint of the right middle finger was enlarged and anchylosed The epididy mes and bodies of both testes were enlarged and indurated

Acid fast bacilli were found in nasal smears

Diagnosis - Well developed mixed leprosy Progress and Treatment -Treatment continued for 146 days during which 14 injections, each of 1 cc of William's leproline were given Doses were usually given as weekly intervals but were omitted on two occasions

when the vaccine was not available and from the 87th till 122nd day because the patient had developed an abscess at the site of the last injection No injection was performed also after the 139th day for the same reason The febrile reaction was intermittent in type and usually mild or moderate in degree, but in the third month of treatment was fairly severe for a few days, that is to say after the 9th injection

The patient gained I pounds in weight during treat ment

## CONDITION ON DISCHAPGE

Improvement -The old ulcers had healed The ulcers and lepromata in the mouth were all healed and replaced by scar tissue

Painful sensation was better conducted from the affected areas

Deterioration -A large number of fresh nodules had appeared in the upper part of the skin of the chest new superficial ulcer had appeared on the radial side of the left forefinger

The knee jetks and pupillary reflexes were no longer obtamable

Remarks -The deterioration was greater than the impiovement

pission and Discharge

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# Indian Medical Gazeite.

# INFIRMITIES AS SHOWN BY THE CENSUS

In Mr O'Malley's very interesting Report on the Census of Bengal, Bihar and Orissa (1911), there is much of medical interest. We direct, however, special attention to Chapter X, which deals with four great infirmities, viz, insanity, deafmutism, blindness and leprosy

It cannot be expected that such returns are very accurate, for many reasons the truth is not recorded, but the following figures show the total number of persons returned as suffering from the above four infirmities in March 1911—in Bengal, Bihar and Orissa —

Insanity	30,675
Deaf-Mutes	8,549
Blind	97,350
Lepers	56,523

All these figures show considerable increase on those recorded in previous censuses, and this is to be attributed to the higher standard of accuracy obtained at each Census, that it is not more than this is shown by the fact that while the increase in persons so afflicted has been only 5 per cent, the increase in the total population is 7 per cent

Taking insanity first Insanity is most pievalent in North and East Bengal, especially in Chittagong Hill Tracts, Cooch Behar, Jalpaiguri and Chittagong Districts Proportionately the number of insanes has increased with the population and is 35 per 1,00,000 for males and 23 per 1,00,000 for females As might be expected it is most common from the ages of 25 to 35 years, and among woman from 25 to 45 years As pointed out by the late Major Robertson-Milne, INS (I M G, May 1910), no doubt the proportion among woman would be greater if it were not for the purda system. The majority of lunatics are kept by their friends with more or less discomfort to both parties, and the accommodation in Bengal for lunatics in asylums is about 1.240 only or, say about one tuenty-fourth of the whole!

We cannot here reproduce Mi O'Malley's very interesting notes on the types of insanity, the belief of the people regarding it of the

strange methods of treatment among the people. Deaf-mutism is most prevalent in Sikkim, North Bihar and North Bengal Sikkim has no less than 27 per 10,000 and Champarun 17 per 10,000. All these districts are north of the Ganges and watered by Himalayan rivers, and in all of them deaf-mutism is associated with a prevalence of goite and cretinism. The following note is of interest.

"Goitie is also common in Bhutan, and cretinism is found there—Captain Kennedy, i ms, who accompanied the Political Officei in Sikkim on a mission to Bhutan in 1909 10, writes that, out of 202 cases treated by him, one in four had goitie, and there were two cretins Goitie in Purnea, a centre of deaf-mutism, was noticed as early as 1788 AD, when the author of the Riyazu-s-Salatin wrote—Tumours on the throat, in men and women generally, as well as in wild beasts and birds, are common. This is not an exaggerated statement, as dogs, horses and fowls often have thyroid swellings in this and other districts."

Blindness—"This is least common in areas where the climate is humid and the country green," as compared with the fierce glare of wind-driven dusty and dry climates. South Bihar is the worst portion. Blindness is chiefly due to neglected inflammation, the use of over caustic crude remedies, dust laden hot winds, and to cataract.

The following table shows the number of operations for cataract in the previous ten years —

District	Number of operations	Number of blind per 100,000
Calcutta	8,320	73
Patna	4,071	179
Gayı	3,997	161
Shahabad	3,406	192
Saran	2,238	116
Murshidabad	1,717	111
24 Parganas	1,556	52
Champaran	1,368	81
Muzassarpm	1,021	80
	_ '	(

Leprosy —We quote the following —

"Leprosy is unusually prevalent in Bengal, Bihar and Orissa owing to two lepei centres, viz, the four inland districts of Bankura, Burdwan, Birbhum and Manbhum, and the three seaboard districts Cuttack, Balasore and Puri, which between them contain 12,605 lepers or over one third of the total number. The disease is most rife in the four districts first named, where there is an average of 16 lepers per 10,000 of the population. The

greatest intensity is reached in Bankura with a ratio of 23 per 10,000, this district is, indeed, the blackest leper spot in the whole of India. In the Orissa districts the proportion is 10 per 10,000, and the disease is evenly diffused through all the three districts. Elsewhere it is most common in the Sonthal Pargaras (which adjoins the leper districts of Birbhum, Burdwan and Manbhum) and in the district of Gaya, the number of lepers in the latter district is slightly swollen by immigrants, the town of Gaya being a sacred place of pilgrimage to which lepers are attracted in the hope of charity from pilgrims

There is a definite geographical distribution of leprosy. The lower delta, included in Central and East Bengal, which has a humid climate and a soil composed mainly of recent alluvium is most immune. The whole of the north of the two Provinces is also in a favourable position, though there are two exceptions, viz., the State of Cooch Behar and the district of Julpaigure in the submontane country known as the Tarar. South Bihar and the Chota Nagpur Plateau, with a drier climate, are more exposed to the raviges of the disease, while it is rife in the country to the south and south east of the Plateau."

There has been, however, a general decline in the number of lepers (51 per cent)

After quoting the rotten-fish theory of Mi Jonathan Hutchison, IRCS Mi () Malley comments as follows —

"M1 Hutchison's theory is not confirmed by the results of the census over the areas where leprosy is most prevalent. In Bankura, in particular, which is the worst leper centre in either Province, the consump tion of badly cured fish is extremely rare. On the other hand, it is common among the Nepalese races, who fulfil the conditions necessary according to Mr Hutchison, for (1) the fish they eat is badly cured, (2) it is eaten very largely, (3) it is in a state of partial decomposition, and (4) it is imported from distant places In every bazar frequented by the Neprlese such badly cuted fish may be seen. Its condition will be sufficiently described by a quotation from Mr Inglis, an old planter of North Bihar 'Large quantities of dired fish are sent to Nepal, and exchanged for nice and other grains, or horns, hides and blankets. The fish drying is done very simply in the sun It is generally left till it is half putrid and taints the an for miles The sweltering, half-notting mass, packed in filthy bags, and slung on pomes or bullocks, is sent over the frontier to some village bazai in Nepal The track of a consignment of this horrible filth can be recognized from very far away The perfume hovers on the road, and as you are niding up and get the first sniff of the putrid odour, you know at once that the Nepalese market is being recruited by a fresh accession of very stale fish. If the taste is at all equal to the smell, the lankest witches' broth ever brewed in a reeking cauldron would probably be preferable' The localities where the Nepalese are found in greatest strength have little leprosy, viz, Dalleeling, where the proportion of male lepers per 100,000 is 45, and, Sikkim, where it falls to 16 The figures for Nepalese castes, moreover, show that the

incidence of lepiosy is very low, out of 35,000 persons belonging to different Nepalese castes in Sikkim only 6 are lepers"

We commend this valuable census report to the notice of our readers

# THE LAST OF OUR LUCKNOW DEFENCE VETERANS

SURGION-MAJOR HENRY MARTINEAU GREENHOW, Bengal Medical Service, retried, died at Esher, Surrey, on 25th November 1912, aged 83 was born on 5th September 1829, educated at Newcastle and at University College, London, took the M R C S in 1853, and subsequently the F R C S both of London and Edinburgh, in 1859, and entered the I M S as Assistant-Surgeon on 20th January 1854 promoted to Surgeon by Brevet, for his services in the Mutiny, from 7th September 1858, became Surgeon in ordinary course on 1st January 1866, and Surgeon-Major on 1st July 1873, ietning on 20th August 1876 After his retirement Di Greenhow tried his hand at literature. and was the author of several novels of Anglo-Indian life, Brenda's Experiment, The Tower of Quilyan, The Bow of Fate, The Emperors Design and Leila's Lovers

Di Greenhow served in the Indian Mutiny, with the 12th Oudh Irregular Cavalry, and took part in the memorable defence of Lucknow. He was mentioned in the Despatch, dated 25th September 1857 of Brigadier Inglis, commanding the Lucknow garrison, for untiling industry, extreme devotion, and great skill, also in Bengal G. O of 8th December 1857, and in the London Gazette of 16th January 1858. He received the Mutiny medal with two clasps, furlough for eighteen months counting as service, and in addition was credited with one year's extra service for pension, as one of the garrison of Lucknow.

Di Greenhow was the last survivor of the medical officers who shared in the defence of Lucknow. The other medical officers mentioned in the Despatch of Brigadier Inglis were Surgeon William Brydon, 71st Native Infantry, the sole survivor of the Kabul massacre, who was severely wounded, being shot through the loins while seated at dinner in Mr Gubbins' house, on 21st July 1857, Surgeon John Campbell, of the 7th Light cavalry, Surgeon George Mathieson Ogilvie, Sanitary Commissioner, Assistant-Surgeon

Boyd, 32nd Foot, Assistant-Surgeon Joseph Fayrer, Civil Surgeon, Assistant-Surgeon Samuel Bowen Partiidge, 2nd Oudh Inegulai Cavaliy, Assistant-Surgeon Robert Bird, Bengal Artillery, and Assistant-Surgeon Edmund Darby, who died of wounds on 27th October 1857 Surgeon John Bannatyne Macdonald also took part in the defence, and died of cholera in the Residency on 8th August Boyd was an officer of the A M D Ogilvie of the Bombay Service, all the others belonged to the Bengal Medical Service

Brydon, Campbell and Ogilvie received the C B, Fayrer, Partridge, Bird and Greenhow were specially promoted Brevet Surgeons was also appointed after the Mutiny to the Chan of Surgery in Calcutta, and Bird received the Civil Surgeoncy of Howiah, then one of the most luciative appointments in Bengal

# Current Topics.

#### THE NASTIN TREATMENT OF LEPROSY

THAT we have not yet got what the public call a "cure" for leprosy must be admitted, but the recent work on this disease shows that in a vaccine like that of Rost or Williams or in Nastin or some such similar remedy the longlooked-for cure may be discovered

One of the most complete discussions of the value of Nastin appears in a report submitted to Government by Colonel G F A Harris, CSI, 1 RCP, himself a well-known clinician letter forwarding reports on the use of Nastin by Major J W D Megaw, IMS, and Capt F A Barnardo, IMS, Colonel Hairs has clearly and impartially summoned up the value of this drug

He quotes the following opinion of Major Megaw, which seems to us to have considerable foundation. It is as follows

That most patients who have been put on the "Nasum" treatment feel much better to begin with but, that later on the majority become disappointed, and cease to believe in it. Major Megaw is inclined to believe that the "influence of suggestion" is a factor of some importance in bringing about the initial favourable results are the national favourable results. of some importance in bringing about the initial favourable results, i.e., the patients have heard or read about the occasionally successful effect in leprosy of the "Nastin" treatment, and, as they wish and hope to receive similar benefit from a trial in their own persons, it may be that "the appetite and general health respond to the stimulating influence of hope," and that therefore "there is nothing extraordinary in thinking it possible, that a leper who has been under the impression that he is suffering from an incurable disease, should undergo he is suffering from an incurable disease, should undergo a marked improvement in health if he comes to entertain hopes of recovery." Further, he thinks "that this improvement in general health should re act favourably on the local lesions is not only possible but even highly probable, and hence one would not be surprised to find benefit resulting from a course of treatment even with

an mert substance, provided that the patients believed

that it was doing them good"

That in no case has "Nastin" produced a cure, and not even a greater improvement than may be seen in other cases apart from any specific treatment. In fact he has not observed in his cases any convincing evidence of any specific effect by "Nastin"

That though it is a costly and rather painful form of treatment, it appears to be safe and practically free from ill effects, and therefore could be used for such patients in a leper institution who wished to submit to it, but, that on account of the first reason, it would not be justifiable to use it on a large scale in a public institution. Major Megaw further states that actual observation and inference strongly support the view that the lighter forms of leprosy tend to become airested apart from any special line of freatment, whilst even in the severe forms there may be "remarkable remis sions," though these unfortunately are in most cases only temporary

Capt Bainaido tiled the remedy for a period of four months on six lepiosy cases and his views are summarised in the following extract -

As Captain Barnardo could only conduct experiments for four months, he is not able to give a very definite opinion on the merits or demerits of the treatment by "Nastin," nevertheless he states his opinion that the extiemely stilking effects which were noticed, convinced him that more prolonged trials would be followed by certain benefit He had no difficulty in obtaining volunteers from amongst the immates of long standing. Those who had only recently developed leprosy were at first quite unwilling, but after two months all were desirous of participating in the new treatment, showing that the inmates themselves were able to admit improvement under the new method, though they were in difficulties how to express the actual degree of benefit obtained Some of the patients experimented on showed a marked general reaction after the injections of "Nastin," and after this general ie action had taken place any improvement which was taking place seemed to cease. The patients on whom "Nastin" was being tried increased in weight under the treatment, but it would appear that they were also allowed to have a seer of extra milk while the treatment was being carried out, and this rather vitiates any conclusion one might otherwise be tempted to draw Captun Barnardo thinks that both the "Leonine" expression as well as any nasal obstruction that existed before coming under treatment, lessened to some extent under treatment, and that the claw hands appeared to relax

We are disposed to agree with Col Hairis that further trials are not to be recommended at the present time, and the following extract given by Col Harris shows that even Prof Deycke himself has found it necessary to try another method of using this iemedy -

Messis Kalle & Co, of Biebrich Rhein, have recently informed me that, according to Dr Dejcke's most recent observitions, an immunisation against "Nastin" may occur if it is applied without intervals for a long period For this reason Professor Deycke now recommends that the "Nastin" treatment should be given in a chronic intermittent form, ie, injected for about three months, then there is an interval lasting for at least two months, then the "Nastin" is begun again and continued for three months, and so on, with graduated intervals and spread over a long time I asked the above firm whether they could not make a reduction in the cost of "Nastin," as the pince now charged was almost prohibitive of its use on anything like a large scale. In their reply they state that they cannot reduce the price "generally," but might be tempted to do so if they received "important orders from Government or other hospitals," when they could supply it in larger quantities and much cheaper packing. They also offered to put a certain quantity it my disposal free of cost if further experimental trials were proposed.

#### THE BEDBUG

In view of the danger of the cimer lectularius we quote the following note on the bedbug by Dr W C Rocker, of the U S Public Health Service (Reports, No 46, dated 15th November 1912)

The body of the bedbug is flat, and consists of a headpiece, a thorax which is divided into three parts and
an abdomen, which is divided into eight parts. It is
covered with short, sharp hairs and coarse bristles.
On either side upon the front of the head is an antenna,
which consists of four parts, these are organs of touch
Just behind them are the eyes. On the lower surface,
near the hind legs, are a pair of glands for the purpose
of secreting a fluid which gives to the insect its charac
teristic, pungent, disagreeable odour. This fluid was
originally used by the bedbug for the purpose of discouraging its enemies, particularly brids.

The biting apparatus of this parasite is quite elaborate, and consists of several parts. In biting, the bag anchors itself to the skin with a couple of hooks called mandibles, and then inserts the maxille, which are shaped like two gutters, the concave surfaces of which look toward each other, and when placed together form a tube. This is used to extract blood from the victim, and also for the purpose of putting saliva into the wound. It is in this way that the bedbug may inject the organisms of disease.

The bedbug is a crimy insect. It thrives best in duty, old houses, in the cracks and crevices of wooden beds, or underneath loose wall paper, and at night it comes out in search of food. It is not particularly active in writer, sometimes going into hibernation. Normally it feeds upon human blood, but lacking this it will live upon decaying wood or the dust in floor cracks.

It is nocturnal in its habits, and during the day remains hidden away in some dark, quiet place. It is particularly active in its search for food. To illustrate this may be quoted the story of the ingenious triveller, who, in order to keep bedbugs out of his bed, set the less of the bedstead in pans of water, where upon the bedbugs climbed the walls, got out on the ceiling over the bed, and dropped down upon the victim. In order to thwart his enemies the traveller was obliged to raise his umbrella.

The eggs are somewhat rounded, white objects, and are laid in collections in crevices or other suitable places. In about a week or ten days after they are laid the eggs hatch out as little worms, called larve, these are yellowish white in colour at first, but later become almost brown. They feed and then go into a resting state, from which they emerge as pupe, they then shed their skins five times, and at last become full grown adults. The length of time which this takes varies with warinth and food-supply from 7 to 11 weeks. They are extremely prolific, and may lay several batches of eggs in a season.

Bedbugs are hard to get rid of, once they have found lodgment in the house. The first thing to do is to endeavour to discover their place of concealment and to destroy it. This may mean that the paper may have to be taken from the walls, or if this be not practicable it should be thoroughly pasted down in the places where it has become loosened. Benzine and kerosene may be injected behind wainscoting or applied to floor cracks. Oil of turpentine, corrosive sublimate, or boiling hot water may be used for the purpose of destroying both the adults and the eggs.

None of the insect powders are particularly effective Funigation by burning sulphur in the proportion of 2 pounds to the 1,000 cubic feet of air space after closing all the cracks through which the gas might escape is efficac ous. The sulphur should be burned in an non-pot which is set upon bricks resting in a tub of water. In this way, the danger of setting fire to the premises is obviated. The gas should be allowed to remain in the funigated room for from 4 to 5 hours. Hydrocyanic acid gas is of course very efficient, but it should always be borne in mind that this is a very dangerous and highly poisonous agent. One way to produce it is to place in an ordinary granite or earther vessel, common commercial sulphuric acid and then after having made sure that there will be no further cause to enter the room, to drop into the acid a thick paper bag containing potassium cyanide. Then get out of the room quickly, close the door tightly and seal up any cracks around it with paste and paper. Great caution should be used in entering the room again, and it must be thoroughly aried before occupation. This method of funigation should be applied only by experts.

The bedbug has two enemies, the ordinary cockroach and the little ied house ant It is lather questionable whether it is wise to introduce these insects into a

house for the purpose of destroying bedbugs

DR W E DECKS of the Canal Zone, Panama, has an interesting article (J. A M A, October 26) on a six-day fever which he thinks may be identical with the seven-day fever. He differentiates it from malaria and from influence, but does not mention dengue

WI are glad to publish the following Notification of promotion for gallantry in the field —

THE KING has been graciously pleased to approve of the following promotions in the Army, in recognition of the services of the undermentioned officers on the occasions of the attacks made upon a detachment of the 39th King George's Own Central India Horse, near Kazarun, in Persia, in December 1911 Dated 29th August 1912 —

## BRLVET

Major Halhed Brodrick Birdwood, Indian Army, to be Lieutenant-Colonel

Captain William Thomas McCowen, Indian Medical Service, to be Major

The Tropical Diseases Bureau at the Imperial Institute, S. W., London, publishes a Tropical Veterinary Bulletin, the first number appeared, dated 31st October. It is to be published at a subscription of 10s annuals for 4 quarterly numbers. The first number is of the same thorough and complete character as the other Bulletins issued by the Bureau, and deals with all the current literature of Phoplasmosis, Anaplasmosis, and Trypanosomiasis.

THE summary by Capt F P MacKie, IMS, of secent work on sleeping sickness, is very well done and in a few pages gives an admirable account of

recent investigations into this formidable African diseases It is excellently illustrated

The first number of the Tropical Diseases Bulletin (dated 15th November 1912), and published by Messrs Baillière, Tindall & Cox is an excellent compilation of current literature on Tropical Diseases (subscription 21s per annum, post free) This issue deals with kala-azar, malaria, blackwater fever, relapsing fever, and sleeping sickness. It will prove invaluable to workers in the tropics, as the articles are admirably condensed

Sir WM Leishman, Frs, rame, has an interesting article in Transactions of Soc of Tropical Medicine (November 1912) on blackwater fever and puts forth the theory that it is due to a Chlamydozoa, a minute ultramicroscopic organism capable of passing through the pores of very finely grained filters and associated with what are vaguely called "cell-inclusions" The whole paper is worth reading

Owing to pressure of space we are obliged to print several newly received and valuable papers in small type, rather than keep them over to a later issue.

# Reviews

The growth of groups in the Animal Kingdom—By Captain R. E Lloyd, IMS Longmans, Gleen & Co Price 5/-.

THE author, in this book, details his view that the sole origin of new species of animals is to be found in the frequent occurrence, among an otherwise stable race, of abnormal individuals or "sports," which possess the power of transmitting their peculiarity to their offspring. The main argument is based on his research among the rats of India (previously published in the Records of the Indian Museum, Vol. III, 1909), and on a memori by Mr. Towers on the potatoe-beetle of the United States (Publications of the Carnegie Institute, Washington, 1906)

The occurrence of small isolated groups of animals, differing in one or two characters only from the parent stock, has long been known to us, these groups are regarded by some as representing true species, others consider them to be merely varieties, and Capt. Lloyd shews that such groups may arise from individual "sports" by inter-breeding, and further, that similar sports and groups may arise from the same parent stock in varying localities and at different times.

The reviewer has not been able definitely to decide whether Capt Lloyd regards these small and often local collections of animals as varieties or as true species, for in his preface he states that they "are not considered to be equivalent to species, they are referred to as family groups," whereas on page 9 he puts forward the view that 'these so-called varietal groups with their one special character cannot be regarded as different from a species." From the general trend of his argument, however, it would appear that the latter is the correct interpretation of his views

It is, therefore, unfortunate that in the groups of rats and beetles, to which he draws attention, the distinguishing features, which serve to separate them from the parent stock, are for the most part differences of mere colouration and size—characters which are notoriously variable throughout the animal kingdom, and which except by some entomologists and "mammalogists," are not usually accepted as being per se of specific value It is still more unfortunate that he has introduced the example of the fish Multhopsis in support of his argument, for in this case it is perfectly obvious to the neviewer, after a careful comparison and study of Capt Lloyd's own specimens, that he was dealing with two similar yet absolutely distinct species, the first of these M lutea was described by Col Alcock, and the second, M triangularis, by Capt Lloyd himself, though, for some unexplained reason, he subsequently rescinded his These two species correspond with his two groups of "disorder" and "order" respectively, and differ in several other characters besides those he mentions. The author divides these specimens into groups of "nairow," "medium" and "broad" according to the proportions of length to breadth, but it should be remembered that deductions based measurements of so few individuals-twentytwo in all—are of little value and his conclusion that the whole, collection forms an example of a polymorphic species cannot be accepted.

The whole of the last chapter is loosely written and the author attempts to ridicule and discredit the theory of natural selection by the coming of cheap phrases, for example "evolution is the arrival of novelties into the world" (p 171) and "fitness is not a reality in itself, it is only a term used to express the fact of survival" (p 180) The attempt at logical deduction on page 182 is not satisfactory effort to disprove the theory of natural selection, Capt Lloyd is without the support of the author of the Mutation Theory, which he desires to substitute for it, for De Vices in his introduction to "species and varieties, their origin by Mutation" explicitly states "My work claims to be in full accord with the principles laid down by Darwin"

The author is an enthusiast and has perhaps allowed his enthusiasm to override his better

judgment, apart from this, however, the book contains a mass of information and observations that were collected together during his rat survey of India, his facts are exceedingly valuable and deserve to be better known and appreciated by Zoologists who are engaged in taxonomic and other biological investigations

Deformities including Diseases of the Bones and Joints—By A H Tubby, Ms Lond, Free Eng. Second Edition Two volumes Illustrated by 70 plates and over 1,000 figures Price 45s net Messrs Macmillan & Co, Ld, St Martin's Street, London

This book although classified as a second edition is really a new one as it has been practically entirely re-written. The author, contrary to the usual English custom, has included all the

diseases of the bones and joints

What strikes one most of all at the first glance at the book is the care and thoroughness with which the subject has been treated. This is evinced not alone by the letter press but also by the very large number of illustrations and references, one may safely say that no deformity however rare has been omitted.

Volume I deals mainly with the affections which are considered to be in the orthopædic surgeon's province; at the end of the book injuries and diseases of muscles, tendon sheaths,

etc, are considered

It is difficult to select any particular chapter for criticism, but those on congenital dislocation of the hip, scoliosis and coxa vara are particularly good

Volume II is concerned with tuberculous diseases of the hones and joints, the main portion deals with this disease as it affects the

spine and hip.

The question of treatment of spinal abscess is fully discussed and includes the discussion of aspiration, aspiration plus injection of various

chemicals, incision, etc, etc

The author emphasises the value of treatment in these chronic and tedrous cases away from large towns, with this every one will agree. The value of vaccination in cases where a sinus has formed is discussed, and also treatment by injection of Beck's bismuth paste. The author has had successful results with the latter treatment, but rather emphasises the possible occurrence of bismuth poisoning, he prefers a paste composed of white wax, soft parafin and vaseline.

Infective diseases of the bones and joints are next considered. There is one statement to which objection must be taken, the author after saying that a number of infectious diseases are complicated by inflammatory joint diseases gives a list in which "many forms of malaria" are included, in a footnote to this paragraph a case of arthritis following Malta fever is quoted Considering that it is now many years since the organisms of Malta fever and malaria were

discovered, this statement should not be allowed to stand in this form

The remainder of the book contains chapters on arthritis deformans, this is practical and well worth reading, loose bodies, new growths, etc., etc., and the final section deals with paralytic deformities.

The author may be congratulated on his book, it shows not only a large practical knowledge of his subject but also an exhaustive acquaintance with the literature thereof, it can be thoroughly recommended

The Surgical Clinics — By John B Murphy, M D Number 4 W B Saunders Company, Philadelphia and London

This number is of the same standard of excellence as the preceding ones. The chief subjects treated are cases of ankylosis of various joints, nephro-pyeloplasty, angrophlebitis, transplantation of bone and various cases of carcinoma

An addition has been made in this number by including one of Di Murphy's clinics for senior students, this particular one deals with fractures and is well worth reading

Infectious Diseases in Schools—By H G
ARMSTRONG and J M FORTESCUE BRICKDALE
Bristol John Wright and Sons, 1912 Price
3s net

This is a very useful book and has been written for and is being issued by the Association of Preparatory Schools. The book is written mainly for masters of schools, and the clinical picture is chiefly dealt with. There is also an excellent chapter by Mr. Dayne on infectious eye diseases and on ringworm by Dr. Aldersmith. The authors are respectively medical officers to Wellington and Clifton Colleges. The book deals in a clear and accurate way with the recognition and differentiation of all the chief diseases of youth, and includes cerebro-spinal, meningitis and epidemic poliomy elitis.

The chaper on school epidemiology is full of interesting facts and there is a useful glossary

We can recommend the book strongly, and especially to those of our readers who have boys or guls at home at a public school

Scientific Memoirs No 54, Philaematomyia Insignis—By CAPF F. W CRAGG, ND, IMS., No 55 The structure of Humatopota pluvialis. By CAPF F W. CRAGG, IMS Calcutta Superintendent, Government Printing

THERE are two valuable but highly technical descriptions. The first is a study of the sucking apparatus of a small brown fly found throughout the oriental region and of a genus closely allied to Musca. It is a very common blood sucking fly of cattle in Madras The second study by Capt Cragg is of the Hamatopota pluvialis, a gadfly or cleg of the family of Tabanidae It attacks man, cattle or horses indifferently

Malaria in the Scientific Memoirs No 58 Andamans -By Major S R. Christophers, MB, IMS Calcutta Superintendent, Govern Price 14 annas ment Printing

THIS is another of Major Christopher's valuable studies on malana

As most of our readers will have received copies of this report, we need do little more than record the fact that it is the anopheline Nsm. ludlows which seems to be responsible for the prevalence of malana at Haddo and in the The larvæ breed in brackish Female Jail water, notably in pools near the embankments, and it is the important carrier in the settle-

From a practical point of view perhaps the most important portion of this Memoirs is Major Christopher's pleading for the thorough cuting of each case admitted It is also worth noting that the convicts acquire the malaria in the Andamans, and there is but little infection before arrival, a fact which would appear natural to those who know the amount of care taken in selecting only healthy prisoners for the Andamans

Pye's Surgical Handicraft — Edited by W H CLAYTON-GREENE, FRCS Sixth Edition Price 12s 6d net Wright & Sons

How many generations of surgeons have received their first sound notions of the craft from Pye's Handiciaft Twenty-eight years ago Mi W Pye first brought out this book and here it is, in its 6th Edition better than ever To the readers of this Gazette it will suffice to say that the new edition is as complete and trustworthy as ever and certainly covers most of the details and complications of treatment occurring in the practice of the handicraftsman called a Surgeon The book is splendidly illustrated, 329 figures and 11 plates an invaluable manual and can strongly be recommended to the Junior Surgeon and to senior students The new edition makes a handsome volume

Diseases of the Throat, Nose, and Ear -By W G. PORTER, MB, BSC, FRCS Ed M John Wright & Sons, Ld Price 7s 6d net

THE object of the writer, in producing this book, has been to provide the practitioner and senior student with a single volume of medium size, embracing sufficient information on the disenses of the throat, nose, and ear to be of value in practice We congratulate the author on the success he has achieved Written in an easy and concise style the book is quite fice from "padding" of any sort, while at the same time it is equally free from the objectionable features of books written purely to enable candidates to ciam for examinations

Each section opens with chapters on methods of examination, general semiology and theiapeutics This is followed by a full description of all the various conditions found in these

The descriptions are concise, but leave out no essentials, and should enable anyone to make a full and accurate diagnosis ment a hard-and-fast line is drawn, indicating where the practitioner should call in the aid of a specialist, and for that reason only the operations which can be performed by the general practitioner are described in detail, the remainder having only their main principles outlined

The illustrations are excellent, forty-four being colouied diawings of laryngeal, nasal and annal conditions No drawings of instruments are given because as the author says, instrument catalogues are usually available ly the customary anatomical descriptions are omitted as everyone possesses a text-book of

anatomy

The result is that we are presented with a very moderate sized book which answers the requirements of the practitioner better than many of the larger volumes which have been presented to the profession in recent years do not think a better book has been written for the requirements of ordinary everyday practice

Diseases of the Naso pharynx -By Chas A. Adair Dighton, MB, FRCs, Ed Tindall & Cox Price 10s 6d net

THIS is intended as an " introduction and possibly a help" to the use of the naso-pharyngoscope of Holmes It is a good deal more than that, for it really includes a very complete account of the diseases of the naso-pharynx as investigated by this instrument This pharyngoscope is constructed on the principle of the cystoscope, being passed through the inferior meatus. Judged by the illustrations it gives the best view yet obtainable of the nasopharynx. The posterior thinoscopic mirror is, indeed, described as an instrument of the past, and as such requiring only to be mentioned

Roughly a third of the book is devoted to a full description of the examination of the ear, nose and pharynx The description is good but in a monograph on a very special region,

such as this, is out of place

At the same time the pharyngoscope is not described in detail Nothing is said about its optical construction, methods of sterrlising, or the various sources of electric current, and their The account of the anatomy and management development might with advantage have been When, however, we come to the extended actual subject-matter of the book, there is much that is new and of interest

The chapter on adenoid is the best we have read anywhere, although his method of operating under the guidance of the eye, by means of the pharyngoscope, must make the operation an unduly prolonged one To wait patiently between each bite of the forceps for the hæmonhage to stop must certainly prove try ing to the unfoitunate anæsthetist.

Trauma as a factor in the causation of diseases of the eustachian tube is emphasized by the author, the commonest form of trauma in these regions being unskilful and septic adenoid operations and the passage of the eustachian catheter Instances of both are given

Concerning suppurative otitis media, whether acute or chronic, the author holds that, in 90 per cent of cases, it is caused and kept up by an infection extending to the tympanum from the naso-pharynx by way of the eustachian His treatment is based on this and his views are clear, definite and well worth

perusing

The main points are treatment of the eustachian tube, and attention to diamage of the For the latter most importance tympanum is attached to the position of the patient, and this is ensured by a splint of the author's own pattern. When this line of treatment fails Heath's mastord operation is advocated, and we are given a full account of this operation are afraid, however, that Heath's operation is only to be learnt by personal observation

The book is extremely interesting and marks a distinct advance in our knowledge of diseases in this area. The description of the ordinary methods of examination of the nose and ear might well be left out It gives the impression that the writer had not found his subject big enough to fill an allotted number of pages

# The Statistics of Puerperal Fever and Allied Infectious Diseases -By Gro Geddes, M D John W Right & Sons Piice 6/-, pp 119

This small book contains a mass of information on the subject culled from many sources An interesting and worthy effort to discover the source and say the blame for puerperal sepsis in the United Kingdom Geddes concludes that the general practitioner who must necessarily attend a large number of accidents and suppurating wounds is the to blame in that puerperal fever, is highest in manufacturing districts and lowest He makes also a plea in agricultural areas that the practice of midwives should be under strict official supervision, which is of interest in view of the undoubted fact that many of these women, neglect or forget, any principle of asepsis they may have learned.

This book makes dull reading but would repay perusal by health officers in particular

in this country

# Indian Civil Veterinary Department Memoirs, No 3 - Thacker, Spink & Co, Calcutta

This, Memon consists of a report of the large amount of research work done in the Imperial Bacteriological Laboratory at Muktesar, U P, and is written by Major J D E Holmes, MA,

IT consists of five parts and deals with such important diseases as surra, rinderpest, hæmorrhagic septicæmia and authiax

The staff of the Laboratory is unfortunately very limited, consist of the Director, an Assistant Bacteriologist and a Physiological Chemist amount of work done is very large, no less than 101 lac of doses of underpest anti-serum were issued. The report is a record of scientific work well done

Papers on Psycho-analysis —By Ernest Jones, MD, MRCP London Baillière, Tindall and Cox, 1913 Pp xv + 432Price, 10s 6d net

Most of our readers have heard of Psychoanalysis-too many perhaps have seen it condemned as a means of treatment of cases of psycho-neurosis, on the ground of its probing into matters "best left undiscussed" That there me, however, of the highest importance, being far-reaching in their manifestations, and giving rise to effects that mould the workings of the human mind, no one who reads this work carefully and with an open mind is likely to deny

Ernest Jones was one of the first in the English speaking countries to take up the study of Freud's work That he is a master of exposition will be clear to all who read what he has here written, and we think that one could not have a better introduction to the subject, which described in Fieud's ipsissima verba is a very

difficult one to epitomise

We would recommend all to have this work on their shelves, far from it may be learnt what psycho-analysis is, and how powerful an aid we have in it for the treatment of psycho-neurotics whose name is legion, pace the self-sufficient exponents of dietary therapeutics for what is euphemistically called "nervous break down"

The Prognosis and Treatment of Diseases of the Heart.—By R O Moon, M.A, MD, FRCP London Longmans Green & Co, 1912 Pp xn +111

In this little work Moon sets forth his knowledge of how to estimate the chances of a fairly useful and comfortable life that a patient who presents symptoms of heart disease may have, and how best to treat such a case

We note with satisfaction that of digitalis he writes "its administration should always be somewhat exceptional in antic cases" Perhaps it would have been safer had he forbidden its administration altogether in such cases

Here in India heart disease only somewhat iniely comes under the observation of the physician, but when it does he will find a turstworthy guide to prognosis in this book

Aids to Gynæcology -By S JLRVOIS AARONS London Baillière, Tindall & Cox. Fifth Edition 2s. 6d net, cloth, 2s net, paper F'cap 8vo Pp n+124. Four Illustrations.

This is one of the best books of an excellent It is complete and up-to-date and indeed ın a marvellous résumé of gynæcology vided always the student uses the larger textbooks such an Ard as this must be invaluable before an examination.

# SPECIAL ARTICLE

# PAPPATACI FEVER

WE synopsize the following account of this disease which appeared in the Bulletin (Vol II, July 1912) of the Yellow Fever Bureau It is by Dr Harold

Sunonyms -Three-days' fever, Sandfly fever, Phlebotomus fever, Sommersieber, Sommerinshuenza, Hundskrankheit, Soldatensieber, Endemischer Magencatarih, Febbie dei tre giorni, Mal della secca, Febbie estiva

Definition—This disease is a benign fever of short

duration, produced by an unknown microbe which is transmitted by a Sandfly, Phlebotomus pappatasis

There are many allusions to it of earlier and later date, Pick describe it as a clinical entity in 1886, and Taussig in 1905 associated it with the blood-sucking insect Phebotomus pappatasu, and Doerr aud a Commission in 1908 proved the mode of transmission. The results of Doerr have been confirmed by Lt-Col But in Malta

# GEOGRAPHICAL DISTRIBUTION

Many parts of Italy, Istria, Dalmatia, Heizegovina, "Balkans," Asia Minor, Crete, Egypt, Sicily, Malia, Tripoli, possibly in the Soudan and certainly in many parts of India

Etiology - No specific microbe has been found, so fai, in sandfly fever, though morphological and cultural investigations, in particular on the blood, have been carried out by various observers. There is reason to believe that the microbe must be extremely small, as it has never been observed in the blood, and because the serum has been proved, by Doerr and others, to remain infectious after passing through bacterial filters, which in previous experiments retained Bacillus typhosus and the Micrococcus melitersis The blood has been found infectious during the first day of the disease, whilst experiments with blood obtained after forty hours have given negative results. The positive results obtained in this disease are quite conclusive, as they have been conducted not only on the spot where it is endemic, but also far away from the endemic areas, namely, in Vienna (Doerr), and in London (Birt), that is, in places where the disease has never been observed

The only animal which has so far proved susceptible to infection with Pappataci fever is a small monkey,

which was infected by Tedeschi and Napolitani
As the flies have proved infectious after seven days, but not at an earlier date, the virus may be supposed to undergo a development before it can be again transmitted. If it is so, we have to deal here with a true host, probably the definite host, whilst the human host would have to be considered intermediate. The pathogenic organism must, in this case, possess a well defined life cycle similar, perhaps, to that of the malarial parasites, and there is, consequently, strong reason to believe that it belongs to the protozoa

Some authors have suggested that Pappataci fever may be identical with dengue, but it would seem more probable that it should be classified in a group together

with this disease and yellow fever

The transmitter—The Phlebotomus pappatasu (Sand-fly) belongs to the family of Psychodide order Diptera The best description has been given by Giassi, and his observations have been confirmed and extended by Doerr, Newstead and others

The Pappataci fly is a small insect of, at most, 2 mm length Its thorix shows a sharp dorsal curvature, and this, together with the attitude of the wings, which are directed upwards when the insect is resting, gives it a characteristic aspect. The head is small, with large black eyes. The hairs antenne are much longer than

The eggs are less than } mm long, and may adhere to each other, but without forming clumps measure from 2 to 5 mm, and are somewhat transparent, of a duty whitish colour. The pupe are of about the same size, and through their body-wall the anatomical details of the image may be recognized

Owing to its small size, its yellowish colour and its napid movements, the Pappataci fly is difficult to detect and to capture It produces no characteristic sound, when flying, as most mosquitoes do It attacks at nighttime only, from the entrance of complete darkness until Only the females suck blood early morning

The susceptibility to the bites of Pappataci flies seems to vary considerably according to the individual, foreigners, in particular, suffer much more than natives

Hands and feet generally show more numerous bites than face and trunk, even when all parts of the body are equally exposed. The marks left by the bites may vary from small, almost invisible red dots to somewhat large, papular infiltrations, the latter are prone to secondary infection with pyogenic microbes, thus, pustules and ulcerations may form

The development of Pappataci flies is not known in The eggs were, for a long time, believed all its details to develop in water, but Grassi has found them only in dirty cells and moist damp places. Grassi considers that 'latrices should be considered suspicious."

The same author concludes that the eggs never hibernate, as he always saw them develop in a few days also in autumn All observers are agreed, that the adult msects always die out before the winter, so that it would seem that the continuation of the species is assured exclusively by the hibernation of the laive This is a point of some interest, and will be referred to later Grassi and others have only been able to find very few larvæ or none at all, and it is, therefore, still a point of discussion, where the principal breeding places of the Pappataci are to be found, a matter of great importance. The suggestion of Grassi, which has been adopted by Doeir, is that the latrines especially should be considered suspicious

Phlebotomi have been found not only in Italy and the above-mentioned Austrian territories, but also in India and in various parts of Africa and America

Epidemiology and General Pathology - The places where this disease is met with, though very numerous, seem to be rather hunted, probably owing to the peculiar distribution of the Phlebotomus Many authors state that it is principally observed where there is a great humidity, but, on the other hand, it has been called 'mal della secca,' because it prevailed during the dry This may be explained, however, when it is remembered that the name referred to was given to the disease in a district where the reno canal dired up during the summer months, and its moist bottom may well have been a habitat for the flies But until a more exact knowledge of the biology of the insect is obtained, a clear understanding of the epidemiological facts cannot be expected. The fever is observed principally during the summer months, June, July and August The investigators find great difficulty in explaining how the time between two outbreaks is bridged over, as the adult Pappataci do not survive during the winter months, and a relapse is never seen after a long interval Doerr is of opinion that there is no other possibility than to accept the transmission of the virus from the Pappataci females to their progeny, which then start the infection during the following summer

The ordinary way of transmission, at any late, is by means of the same adult insect which has sucked infected blood, as it has been repeatedly demonstrated As the blood seems to retain the infecting agent during a short period only, comparatively little opportunity would appear to be given to the flies to infect them-selves, but this is evidently fully made up for by the quite enormous numbers in which they are often observed.

It has been taken for granted that the parasites have disappeared from the blood, when this is no more infections. But this is not absolutely certain, as there might possibly persist forms which were not able to develop anew on being transferred to another host, or the blood might contain anti bodies, which impeded their development. The last possibility should particularly be considered, as it has been shown by Doerr and Russ that the serum of individuals who had recovered from the disease, when added to infective serum may neutralize its infecting power. This neutralizing power has only been demonstrated, after some time—a week to two years—had elapsed since the disease had terminated, but the anti-bodies may be supposed to develop at an earlier time as their formation is probably a slowly progressing process.

Immunity—A single attack of Pappataci fever confeis immunity, at least relative. Relapses are seen due to the same infection, but re-infections are said, by several authors, never to occur. Natives in endemic areas enjoy an almost complete immunity, this is explained as due to a previous attack of the disease, in childhood in analogy with other diseases of a similar nature.

Pathological Anatomy —No specific pathological lesions are known, as the disease is never fatal when un complicated. In the few cases in which post-moitem examinations are accorded, secondary infections were responsible for the fatal issue, and the findings corresponded to those observed in septic conditions.

Incubation —This period has been found, by clinical observation and by experiments, to vary from three to seven days

Symptomatology and Course—Different outbreaks show considerable variations of the symptoms. The character is said to be, as a whole, milder in Malta than in the Austrian territories.

The onset is, as a rule, sudden, with febrile symptoms, headache, and pains, especially in the extremities. Only in exceptional cases are prodromal symptoms observed, as general ill-feeling and uneasiness. The fever is continuous for one or two days, the temperature then begins to go down and reaches the normal height on the third, fourth, or fifth day. The other symptoms subside at about the same time, but a very pronounced general weakness often persists for one or several weeks.

Nervous symptoms are very pronounced Headache is constant and often intense; it is most frequently frontal, but may be occipital. Pains in the back, loing, and lower extremities are likewise present in nearly all cases, and there is often pronounced tenderness of various nerves, particularly the peroner, tibialis and intercostales. Excitation is a frequent symptom, and de litium is seen occasionally, as well as vertigo and lipothymy

Muscle pains are very frequent, and their chief localizations are the intercostal and lumbar muscles, and the muscles of the calves. The joints are but seldom affected, they are, in some cases, painful and a slight swelling of the knee-joint has been described as quite exceptional. The periosteum of the tibia has been painful on pressure in some cases.

The eyes are injected, especially the conjunctive conresponding to the lid opening, thus, a reddish band is seen running across the sclera to each side from the cornea. The bulbs are painful on pressure

In the majority of cases, symptoms from the digestive organs are observed, but they do not appear to be quite constant. There is some diffuse pharyngitis and tonsillitis. The gums may show a tendency to bleeding, but this is not a constant, or even frequent symptom. Most patients have no appetite during the acute stage. The tongue is mostly coated, white or yellowish, the tip may be clean, in the shape of a triangle with its base directed forwards. Vomiting occurs in about one third of the cases, it is often an initial symptom. Constipation is the rule, whilst the temperature is high, later on, diarrhoa often sets in, sometimes vehement, and the liquid stools may contain blood.

Epistaxis is a common symptom The laight mucosa may be affected by invasion of the inflammation from the pharynx

The pulse-rate increases with the fever, but may go down before the temperature falls, and in convalescence a pronounced brady cardia is the rule, according to the Austrian Commission, pulse rates about forty have been observed.

Evamination of the blood reveals no typical deviation from normal conditions, in either number or morphological characters of the red blood corpuscles

There are no important symptoms from the urmary system. Albumen is but seldom found, and then only during the highly febrile stage.

Various cutaneous eruptions may occur There may be ery thema of a morbilliform or multiform character and a few roseolæ The skin is, in the initial period, dry, but when the temperature is falling and convalescence setting in, there may be profuse sweat.

All these symptoms disappear after a few days, when the temperature becomes normal, but a general weak ness may persist, as mentioned, so that the previous good health is often not restored until two or three weeks after the beginning of the disease. In abortive forms, which are sometimes seen in relapsing cases, the whole duration of the attack does not exceed two days

The prognosis seems to be invariably good, and complete restoration to health may be confidently assured Nervous troubles may persist for a somewhat longer period, for example, in rare cases, neuralgias. The convalescence may also be complicated by neurasthenic phenomena, and a few case of real psychoses have been described, which, however, all eventually recovered

Diagnosis -Until the pathogenic microbe be dis covered, the diagnosis must be based on clinical observa tion, and on the negative results of investigations for the agents of other specific infections It may be a difficult task to distinguish influenza from Pappataci fever, especially when, in the former disease, catarihal phenomena are not pronounced Moreover, Doern has found in several cases of Pappataci fever, influenza bacilli in the sputum. It must, therefore, be remembered that one of the two diseases does not exclude the other Special stress should be laid, for the sake of differentiation, on the nervous symptoms which are, as a rule, so prominent in Pappataci fever Similarly, it may be differentiated from acute gastric and gastro Acute insolation may begin very intestinal catarilis much in the same way as Pappataci fever, but the subsequent course will soon clear up the diagnosis differential diagnosis from dengue may undoubtedly be very difficult, although muscle pains prevail in Pappatact fever, and articular pains in dengue The presence of the transmitting agent of one of the diseases, with exclusion of that of the other, may also be of some help The discovery of the in establishing the diagnosis specific microbes in the two diseases must be awaited with the greatest interest, this may be expected to supply the final means of settling the diagnosis or, possibly, of establishing their identity

Treatment—This problem has been carefully investigated by the Austrian observers. No specific treatment exists, but much can be done in the way of alleviating the sufferings of the patient, which may, at times, be very severe. The best results were obtained by the administration of aspirin in the doses of one gramme three times daily, this treatment is said not only to alleviate the pains, but also to render the whole course of the disease somewhat milder.

Patients should stay in bed during the whole course of the disease, and a saline purgative should be given at the onset

The sand fly bites should be treated locally, in order to avoid secondary infection with pyogenic microbes For this purpose, painting with tincture of iodine has been recommended by Hale

# ANNUAL REPORTS

# ASYLUMS REPORTS, DACCA AND TEZPUR

THE Dacca Asylum now belongs to Bengal and the Tezpur to Assam, but Col Neil Campbell, CB, CIE, submits the Report dated 9th March 1912 The daily average strength of the lunatics was 533, while it was only 480 in the previous 3-year period

The following note on the medical history

sheets is worth reproducing -

"In my last Tilennial Lunatic Asylum Report I represented that the information furnished in the medical history sheets of linatics was in most cases inadequate and unsatisfactory and that there was no improvement in the preparation of these sheets, although the attention of committing officers was drawn by Government to the necessity of making an exhaus tive enquiry into every case of a lunatic before he is sent to the asylum. This defect having been considered to be due to the imperfect instructions and division of responsibility between the police and the medical officers in regard to the preparation of medical history sheets, the instructions for the writing up of these sheets have been revised and the sheets have also been divided into two."

In 1911 the chief causes of deaths in the Dacca In 1911 the chief causes of deaths in the Dacca Asylum were cholera (14), tuberculosis (5), dysentery (3) and malarial fever (2) The death rate in this asylum would lave been low, ie, 637 instead of 1106, but for the 14 deaths from cholera which broke out in an epidemic form from the 22nd January. The first case was a male insane sent from Sylhet who must have contracted the disease on the way. The epidemic lasted throughout February and first few days of March. In all, there were 26 attacks with 14 deaths. Major MacLeod, IMS, who took charge of the asylum on the 1st March took prompt measures to stop the epidemic lst March took prompt measures to stop the epidemic and no fresh case occurred from the 1st March except 2 doubtful cases There was comparatively less fever amongst the immates of this asylum during 1911 and this was probably due to the prophylactic treatment with quinine which was commenced on the 19th January, twenty five thousand five giain tabloids having been distributed during the year. The Superintendent, been distributed during the year. The Superintendent, Major E. (\*) MacLeod, IMS, is of opinion that quinine regularly administered is not only prophylactic to malaria, but also to some extent to intestinal parasites and in addition acts as a general tonic. The number of deaths from diarrhea and dysentery fell from 14 in 1910 to 4 in 1911 and from exhaustion from mania from 8 to nel Hypodermic injections of byoscin and morphia were freely used in these cases with excellent results. The chief causes of deaths at Tezpur during 1911 were chief causes of deaths at Tezpur during 1911 were tubercle of lungs (10), mæmin (4), dysentery (2), fever (2), pneumonia (2), and acute mama (2). One lunatic committed suicide by jumping into the asylum well which will soon be protected by a safety elevator Tubercle is gradually spreading amongst the immates of this asylum, there being 10 deaths from this cause in 1909, 12 in 1910, and 10 in 1911, i.e. a total of 32 against 9 in the previous triennium. There is no accommodation for segregating this class of patients, and moreover the asylum wards are overcrowded, which is an important factor in the propagation of this disease. A small temporary tubercle ward has been sanctioned, but the work of construction has not yet been combut the work of construction has not yet been commenced for want of materials It is however expected it will be erected shortly In 1310 I drew up a set of rules as to the precautions to be taken to lessen the incidence of tubercle, comes of which were forwarded to the Superintendents of the Asylums for their

Col Campbell gives the following ratios of deaths per 1,000 of average strength among the lunatics in the different provinces of India in 1911 were as follows —

Central Provinces	56	per mille
Bengal	74	11
Bombry Punjab	87 91	**
Madias	91	> 7
United Provinces	99	17
Eastern Bengal and Assam	105	**
Burma	114	••

Overcrowding is one great cause of this extremely high mortality rate in the Presidency of Bengal, and until the Province of Bihar and Orissa has got the long proposed and oft deferred central Lunatic Asylum, no improvement can be expected Few of the Asylums of India are creditable to the Governments concerned. That they are not far from worse is only due to the continued efforts of the medical officers in charge. Col Campbell writes.—

"There was no change in the capacity of the Dacca Asylum during the triennium under report capacity of this Asylum calculated at 50 superficial feet per patient is for 238 males and 45 females maximum number confined in any one night was 262 males and 42 females in 1909, 251 males and 39 females in 1910, and 273 males and 46 females in 1911 was thus overcrowding throughout the triennium Attempts are being made to make over the harmless lunatics to the care of their friends and relatives, In 1909 the capacity of the Asylum at Tezpui was for 133 males and 33 females, while the maximum number confined in any one night was 200 males and 42 females In 1910 there was accommodation, including solitary cells and hospitals, for 157 males and 33 females and the maximum number confined in any one night was 209 males and 44 females In 1911 the accommodation was the same as in 1910, the maximum number under confinement having been 199 males and 43 females There was great overcrowning throughout the triennum A proposal for a new male ward is under consideration, the plan and estimate for which are in course of preparation. There is a proposal to convert the present female ward of the Tezpur Asylum into a male ward and build a separate female ward on a new site. This will of course prevent site crowding, but the cost is prohibitive. At present the female ward is separated from the male ward by a bamboo palisading, but as this is not sufficient for the purpose, the construction of a masoning wall between the male and female wards has been administratively sanctioned and the work will be started as soon as funds are allotted by Government"

# BENGAL

Col G F A. Hains, CSI, FRCP, IMS, submits the Asylums Report for Bengal as it existed before 1st April 1912

The story is the same, gross overcrowding and its results. The average number of lunatics in the two asylums of Berhampore and Patina and Bhowampore was 937 against the previous 3-year figure of 851

It is satisfactory to see the total number of readmissions remains low. Col Harris has the following remarks on the eternal overcrowding, and be it remembered that many lunatics are made over to their friends by the police who

would be far better treated in an asylum but there is no room!"

'It is apparent from the return that the existing accommodation in our asylums (112, 722 for males, 207 for females, or a total accommodation for 929 insane patients) was insufficient during the year 1911 There was more or less overcrowding in all the asylums in that year, and especially so at Berhampore, where at times it was serious in the male division and caused To a certain extent this deficiency will much anxiety be met by the recent orders of Government allowing the conversion of the existing recreation shed hitherto used by lunatics into 5 wards, and by the conversion of the shed hitherto occupied by the keepers into 4 wards altogether 9 new wards have been added. To meet the overcrowding in 1911 the rules regarding the admission of certain classes of lunatics (viz, only those who were considered to be dangerous or who were friendless and destitute) had to be rigidly enforced At Patna overcrowding in the criminal ward was relieved by the transfer of 6 lunatics to the Berhampore Asylum, this being the only airangement possible Bhowanipur Asylum was very short of accommodation on the female side, causing a good deal of inconvenience It has been since proposed that some of the existing rooms should be partitioned off to provide the extra accommodation needed"

General remarks—Of recent years the administration of the Bengal lunatic asylums has much improved, and the management of the different asylums during the triennium has been uniformly satisfactory. The lunatics have been well looked after, sympathetically treated, and properly clothed and fed and the Super intendents have done all in their power to alleviate the condition of the unfortunate people committed to their care. All the lunatics are weighed monthly, but those suffering from pulmonary phthisis are weighed fortnightly or oftener. The epileptic and suicidal patients are properly isolated, and the former wear distinctive and indestructible clothing.

I think I may say that greater attention has been paid during the triennium to the dietary of the lunatics and so to arrange that it shall be sufficiently varied, and in sufficient quantity, and to all the minute hygienic details in the asylums. The lunatics have been sufficiently well clothed, and the infirm gang system has been maintained, with great benefit to the weakly and debilitated.

Prophylactic remedies for malaria have been regularly issued in all the asylums during the unhealthy seasons of each year. In order to try to brighten the asylums and keep the lunatics more cheerful and contented, amusements of various kinds have been provided at a cost of Rs 452 4-6 in 1909 and Rs, 246-2 in 1910 and Rs 309 4 in 1911. The Superintendent at Berhampore writes—"During the Coronation celebrations the local Committee very kindly gave a grant towards the expenses of a dinner with sweets, etc. This was much appreciated." The local Club at Berhampore also kindly supplied the back numbers of the leading periodicals for the European patients. Some of the well-conducted lunatics were allowed in charge of keepers to go outside the asylum walls and for carriage drives.

During 1911 new rules regarding the services of the subordinate staff of the asylums were issued with the sanction of Government, the objects being to secure the enlistment of a better class of men and to prevent them from leaving their posts at will to the detriment of the interests of the asylum. Under the new rules all the members of the subordinate staff of an asylum are required to sign a declaration as to their antecedents. In the cases of keepers, the entries in the declaration form have not only to be verified by the police, but the keepers are also required to furnish a monetary security under an agreement that they will forfeit it, if they

resign their services without giving two months' notice, or if they are found guilty of misdemeanour. The Superintendent of the Berhampore Lunatic Asylum reports that the keepers object very much to the security bond. He states that many men come for enlistment, but as soon as the question of security is mentioned they go away. He recommends that this clause of the new rules should be cancelled. I have asked him to submit the matter separately for reconsideration.

The final decision of Government on the proposed construction of central Lunatic Asylums at Ranchi for European and Indian insanes, is in abeyance, owing to the constitutional changes. The Dacca Asylum under the new arrangements has been added to the Bengal Presidency, whilst Patha has gone out of it, and has been allotted to the new province of Bihar and Olissa Thus in Bengal there will be three Lunatic Asylums, viz., at Beihampore, Dacca and Bhowanipur The whole question of the provision of increased and better accommodation for lunatics (particularly for Europeans and Anglo-Indians) which is much needed, is under the consideration of Government.

The Superintendents report that the tell tale time pieces which were supplied to the asylums in 1909 have been very useful. The new Manual of Rules for the management of Lunatic Asylums in Bengal, which was brought into use in 1910, is reported to have been of great help to these officers.

The Government Resolution dated 18th June has the following note which is of interest -

"The conclusion to be drawn from these figures is that while more modern methods of dealing with lunatics have succeeded in reducing the mortality, increased strictness regarding admissions has eliminated the less serious cases of lunacy, and has therefore necessarily reduced the number discharged as cured. The readmissions are almost entirely cases of criminal lunatics who had been discharged to stand their trial, and it may be assumed, therefore, that the cures were permanent. But the report seems to show that the present asylum population consists to a very large extent of hopeless cases, and it may be expected in future that the number of cures and deaths combined will not equal the number of admission, the daily average therefore will probably continue to rise

The accommodation in the present Lunatic Asylums provides for 929 persons It was therefore found absolutely insufficient for the insane population of 1911, and temporary accommodation for 90 more had to be provided The provision of temporary accommodation is an unsatisfactory expedient, and the asylums in the Province (though that at Berhampore was enlarged in 1905) have for some years been condemned as below standard of modern requirements Plans and estimates amounting to 20 lakhs had been carefully evolved for a first class Central Asylum, where a skilled alienist could apply modern methods of treatment, and it had been decided to locate the Asylum at Ranchi in conjunction with a Central Asylum for European lunatics for the whole of Northern India The reconstitution of the Provinces has rendered necessary a reconsideration of this scheme, and the matter is under correspondence with the Government of Bihar and Orissa. But Governmont is of opinion that a modern asylum should be constructed as soon as possible to contain 1,200 patients and the approved plans allow for a further increase in the accommodation, as, while it may be expected that the number of cures may increase owing to more scientific methods of treatment, the mortality will probably decrease, and it may be hoped that in the future msamty may be regarded more as a form of disease than as an irremediable infliction, and the relatives of insane persons may wish to have them properly treated at then own expense by a skilled alienist?

Colonel Hairis calls attention to (and the Government Resolution endoises his remarks),

<sup>\*</sup> See Note on Census Report, Bengal, at p. 69 above -ED

the great loss the alienist department suffered in the death of Major C Robertson-Milne, IMS, at Berhampore

#### BOMBAY

The Hon'ble Surgeon-General H W Stevenson, CSI, IMS, submits the report for 1911 on the Lunatic Asylums of Bombay Presidency Much has been done during the past three years towards improving and increasing the accommodation in these asylums and the new Central Asylum at Yervada is nearing completion and is expected to be ready by April 1913. The daily average strength for the year 1911 was 1,019 as compared with 986 of the previous year. On this point Surgeon-General Stevenson. comments as follows -

"The daily average strength in 1911 was 1,0198 as compared with 9861 in 1910 and 9886 in 1909 mean strength for the triennium under review was 998 2

against 951 5 for 1906-1908

The chief cause for the steady increase in the number of patients in the asylums would appear to be the growing popularity of these institutions People are beginning to realize that the mentally afflicted are much better off in an asylum than in their own homes owing perhaps to higher ideas of personal comfort, and probably less lessure to look after them, they are becoming less tolerant of insane persons in their Louse holds and near neighbourhood. There is no evidence to show that any actual increase of insanity is taking place amongst the general population, though it must be acknowledged that, from lack of reliable information as to its prevalence litherto, there are no grounds on which a positive opinion can be based"

The health of the asylum inmates is commented upon as follows -

"The number of deaths fell from 130 m 1909 to 126 in 1910 and 89 in 1911. The average mortality, how ever, for these years was high as compared with the previous triennium, namely, 115 against 72 per cent of deaths to the daily average strength was 87 as compared with 128 in 1910 and 131 in 1909 mean death rate to the daily average strength during the three years 1909—1911 was 115 against 75 in

Diseases of the bowels are very prevalent and the exact cause has not jet been ascertained. An enquiry into this is now going on. The situation of the asylum has nothing but its proximity to Bombay to recommend It is water logged in the time of the S W Morsoon and the very heavy rains and continual damp render it a most undescrible place for the treatment of insanes who stand such conditions badly tuberculosis cause a number of deaths each year and Pneumonia and

malaria is very common
Of the 210 deaths which took place at this asylum during the trienmum there were 41 from cholera, 44 from diurhoa, 20 from dysentery, 21 from pneumonia, 15 from tubercle of lungs and bowels, 49 from fever and debility ind 10 from other causes Of these, 29 deaths occurred among persons who were admitted in a very bid state of health and died within a month of their admission and 25 occurred among persons who were old and weakly

The mean death rate at the other as lums was low as compared with the previous trienminm

As regards the causes of insanity the following remarks are quoted -

"Institute was receibed to specific causes in 800 cases or 585 per cent as compared with 756 cases or 557 per cent in 1910 and 745 cases or 550 per cent in 1909,

the mean ratio for the triennium being 564 against 54 2 for 1906-1908

Of the known causes, there were—

				Ave	rage
Physical Moral	1911 684 116	1910 623 133	1909 601 144	1909—1911 636 131	1906—1908 574 133

Of the physical causes, the use of intoxicating drugs, over indulgence in spirituous liquor, previous attacks, fever, epilepsy, hereditary causes, and mental trouble accounted for most of the admissions

The cause of insanity could not be ascertained in 567 cases in 1911 against 601 in 1910 and 610 in 1909, the average number of these cases for the triennium being 593 against 599 in the preceding triennium 1906—1908

Great difficulty is experienced in many cases in obtaining any previous history of patients sent to asylums, and consequently the cause assigned for insanity is not always correct There is rather a tendency to attribute insanity to the abuse of drugs and alcohol when these have only been an accessory and not the original or main cause of disease, which remains undiscovered from want of a reliable previous history of the patient?

As regards management Surgeon-General Stevenson writes -

"The difficulty still continues in obtaining a suitable class of men for work as warders. This greatly increases the work of management, and until the pay and prospects of warders are improved there seems little hope of inducing a better and more intelligent class of men to enter the service"

## MADRAS

Surgeon-General W B Bannerman, MD, CSI, IMS, submitted the report on Madras asylums for the three years ending 31st December 1911 He writes as follows.

"Asylum population and accommodation-Population-Criminal and civil lunatics - The population of the three asylums, Madras, Vizagapatam and Calicut was at the commencement of each year as follows ~

1909	0.5
1910	654
· -	700
1911	
	724

The Madias Asylum contained 74 01 per cent of the above numbers in 1909, and 74 and 74 45 in the years 1910 and 1911, respectively Admissions and re-admis sions in the three years under report 1909, 1910 and 1911 numbered 227 (173 males and 54 females), 232 (171 males and 61 females), and 250 (197 males and 53 females), showing a steady increase year after year, the figures for the previous triennium being 225 (166 and 59), 180 (125 and 55) and 225 (176 males and 49 females) paring the two trienmal periods there is an increase of 79 in the one under report - probably the outcome of a better appreciation of asylum care. The daily average strength of the asylums was 713 94 as compared with 625 14 of the last report, the proportion of female to male inmites being the same, viz, 1 to 28 At the end of the year 1911 there were 757 inmates under treatment, as compared with 724 at the end of 1910 and 700 at the end of 1909

Accommodation—In the Madias Asylum with the new hospital for European females of 20 beds, there is accommodation for 91 European males, and 81 females, and for 434 native males and 108 native females, which is 714 in all The Vizagapatam Asylum can accommodate 79 native males and 17 females and the Calcut Asylum (with the new female ward to accommodate 19 native males and 17 females and the Calcut Asylum (with the new female ward to accommodate 19 native males and 10 females and the calcut Asylum (with the new female ward to accommodate 19 native males and 100 females and the calcut Managara and 100 females and 100 females. modate 48 patients), 107 males and 60 females Increased accommodation for females, necessary in Madras and Calicut, and alluded to in the previous triennial

reports, has been supplied (suppa) At Madias 573 (426 males and 147 temales) was the highest number confined it any one time on the 18th December 1911, it Vizagapatam 76 (59 males and 17 females) on the 21st April 1910 and it Calicut 132 (96 miles and 36 females) on the 6th October 1911 Lavatory for European males and another for European females are in process of completion in the Madias Lunatic Asylum

Now buildings—At the Madias Asylum in 1909, 17 single 100ms for natives in female enclosure, and four single 100ms for Europeans in the female enclosure were built. The following works which were in process of construction in 1910 were completed in 1911—(a) A new hospital for 20 beds in female enclosure, (b) dining 100ms for European female patients, (c) four single 100ms for Europeans in Male Hospital, (d) sixten single 100ms for evil natives (male), (c) Recreation Hall, (f) two single 100ms in the criminal enclosure for Europeans, (q) a leper ward of four single rooms, (h) two observation 100ms for Luropean males, and (c) alterations in Assistant Mation's quarters for accommodating female observation cases. The land to the north of the Institution has not vet been acquired for further extension. At Vizagapatam in 1909 were constructed a latrine for the warders' lines, in 1910, (1) a block of six single cells for accommodating institute under observation, (2) a purch rest house, and (3) a hospital for females."

On the health of the meanes we may quote the following -

"Statistics of health and treatment of the such - Such new and its Causes - The average daily sich was 67 56, 53 57, and 61 64 in the three asylums together in the three years 1909, 1910 and 1911 respectively. The mean for the triennium was 6202—greater by 9 than the last which was 5306. This increase is due to the health of many nev admissions being bid necessitating their immediate admission into the hospital, and to all write cases of instructs requiring circled numbers, and dicting being also admitted. The principal discusses from which immites suffered were in order of frequency -ciscoses of the digestive system, including dysentery and dinished, of the nervous system including mains, melancholia etc., an emit and debility, tubercular diseases and malitial fever. Coincidental with the mcrease of dysentery and drutho a among the population of the town there were a great many admissions of these discises among the criminal population at

Possible feeding and methods in me-Very seldom resorted to at Vizagapatam and Caheut, but at Madras it is found a necessity. The annual mean number of feedings for the triennum was 1,392. No bid results have accused, and the method has been found suitable and satisfactory. Nasal feeding is adopted by means of a Jacque's eitherer and syphon tubing.

Mortality and its causes—The total number of deaths was 18, 79 and 69 in the three years, or an average of 65 33 per annum (the large number in 1910, includes 12 from cholera in the Madias Asylum)—The average for the previous triennum being 77 67. The chief causes of mortality were (a) tubercle which, as usual, heads the list, 14, 18 and 16 for the three years under report of a total of 39, 64 and 56 respectively in the Madras Asylum (Vizagapitam contributing 0, 1 and 1 of a total of 3, 6 and 6 deaths respectively and Calicut, 0, 1 and 3 of a total of 6, 9 and 7 deaths respectively), (b) diseases of the nervous system, and (c) diseases and cataribal inflammation of the bowels. The percentage mortality calculated on the daily average strength yields 7,09, 11,06 and 9,19 as compared with 11,87, 16,30 and 9,11 respectively for the previous three years.

Epidomics and how they were dealt with —The Vizaga patam and Calicut Asylums were free from epidomics during the three years, and Madras Asylum in 1909 and 1911, but in October 1910 a fairly severe outbreak of

cholera occurred There were 22 cases with 12 deaths, a case mortality of 54 55 per cent -the lowest on record in the Institution I quote in evienso from the report of the Superintendent - Every possible means was taken to check the disease, and all cases were treated in the contagious disease sheds a special staff of servants were entertained for the purpose. The method of treatment was that advocated by Major Leonard Rogers, off, IMS The cause of the outbreak could not be definitely traced but two factors were believed to have played some important part-"one was the fact that the water of the kitchen well wis found to be highly contaminated ind contined vibrios in great numbers, and it was possible that the water had bcen consumed by some of the patients who suffered from cholera—the other was that, when the outbreak occurred, several hundred coolies were employed in the asylum by various Public Works Department contractors, and it was possible that one of them might have conveyed the disease by some means of other, but no sickness could be traced amongst these coolies of their families. In the previous triennium (October 1907) there were 11 deaths, and in the one ending 31st December 1905, 19 attacks with 12 deaths, with a case mortality of 82 35 and 63 16 per cent respectively. In the former of these the cause was attributed to the conveyance of infection by flies which swirmed consider ably at the time

The nursing of the sick is efficiently carried out by a special nursing establishment. The Superintendent, Madras Asylum, complains bitterly and rightly too, I think, of the pay of matron, nurses, European attendants and inferior stall as being quite insufficient. He has not, owing to this cause found it an easy matter to get suitable and efficient substitutes to fill vacancies. I am now in correspondence with him and shall shortly submit propessls in detail."

Bonny Breithfological Report (1911)

This was submitted by Major W. Glen Liston, CII, MD, IMS, the Director

We quote several extracts from this very interesting report -

"The table below shows comparative figures of out put in doses of Anti plague Vaccine for the past five years.

~~ ~~ <del>*</del>				
1907	1945	1{¤W	1910	1911
	1	,		
620,933	51,45	59, 161	62 - 693	1,211,170

The output of the vicinic during the past year is a record in the history of the Laboratory. The large increase in the demand for the vicine tried the resources of the laboratory to its utmost. Work had to be carried on throughout the Christman and other holidays. All demands for the vaccine were however met with very little additional staff.

During the latter part of the year a number of complaints were received from various quarters regarding the severity of the symptoms, both local and general, which followed inoculation. Even when rigid aseptic precautions were adopted swelling and redness round the site of injection was marked and lasted for three or four days, and the general maluse and fever were more severe than usual. We instituted a very scarching inquiry into these complaints. Individual brows were examined as to the length of time that the brew had been incubated and the period which had clapsed between sterilization and actual use. The brews complained about were almost all recent ones, a fact which confirmed our experience in past years.

To avoid unpleasant symptoms in the use of this fresh vaccine, we advised the dose to be reduced from 4 to 3 c c if used within three months of the date marked on the

The protection afforded by the reduced dose was probably less than that produced by the larger dose, but we had to bear in mind the fact that a severe reaction following moculation always tends to make the operation unpopular.

In deciding upon the most suitable dose of vaccine to

use, two points have to be kept in mind

(a) The degree of immunity produced by a given dose (b) The amount of discomfort (fever, pain and swell-

ing) produced by that dose

Speaking generally the larger the dose of vaccine given the greater is the immunity produced, but the size of the dose is limited by the severity of the reaction which follows moculation, for the larger the dose, the more severe the reaction. In selecting a suitable dose of vac cine, therefore, care has to be taken to give as large a dose as can be borne without great inconvenience. this reason when fresh or immature vaccine is used a smaller dose has to be administered than when mature vaccino is used "

After describing the work of Capt Taylon, IMS, on rats it is iemaiked -

"With these data before us we are in a position to gauge approximately the reproductive powers of rats. A single pair produces, say, 6 rats every two months, these young rats are able to produce young ones in turn in approximately 4 months. Males and females are produced in about equal numbers. On an average, say, one litter of every three produced is des-Males and troyed by the parents before they reach maturity these circumstances in less than one year the single pair may have multiplied to 50 pairs If this late of multiplication were continued for a year and a quarter, the number of lats would be very great indeed. As a matter of fict observations in the field show that such rapid multiplication does not actually take place it is probable that overcrowding, destruction by natural enemies, and disease keep down the numbers. There is another very important factor which has to be taken into consideration in making such calculations should be remembered that not every pan of rats is The number of rats we experimented with was too small to yield any reliable estimate on this score, but by a somewhat complicated calculation we reckon that somewhere about one pur in every four may be considered to be infertile in the sense that reproduction in these does not go on at the estimated rate of a litter every two months Even making this allowance but taking no account of the effect of disease and destruction by enemies, it does not seem possible to give a lower estimate than that a single pair of rats may multiply to 40 pans in the course of a jear

Experience in the field does not by any means confirm this estimate Difficulties are met with in field work which prevent us making an accurate estimate of the rit infestation of any place. The experience, however, suffice to put us on our guard in making calculation regarding the reproductive power of rats from purely laborators observations. Sufficient has been learned by these experiments to convince us that rats multiply very rapidly and the important deduction can be drawn that any destructive measures against rats must be very

thorough and very persistent "

There are numerous reports showing the great eshcacy of anti plague inoculation, and quote in full the following experiences in H H the Nizam's Dominious

"During the past year a very severe epidemic of plague broke out in Hyderabad (Deccan) Lieutenaut-Colonel Diake Brockman, I Ms, came to the conclusion that a vigorous inoculation campaign would be the only means of checking the epidemic, as evacuation on any large scale was impracticable Inoculation was done on an absolutely unprecedented scale, a striking example of what energy can accomplish Up to date only a few records of results have come in, but these with

Lieutenant Colonel Drake Brockman's permission w

publish He writes -'I took every precaution from the first to make it (ie, moculation) a success, paying great attention to many little details in order that the records obtained would furnish us with reliable data upon which possibly Enclosed I have useful deductions could be made buefly noted down for your information the details I refer to, and I think that you will agree with me that the whole thing has been thoroughly carried out moculation campaign in this city was started in last September and practically ended in January, a period of about 4 months only, and during that period I was able to moculate over 75,000 human beings, and that 100 without entertaining any really extra establishment but done with the agencies of my dispensaries and then medical subordinates in charge I think, humanly speaking, that these records could not have been more carefully kept, for the whole campaign was from first to last under my personal direction and supervision, and I never allowed any person to perform the moculation who had not been most thoroughly taught the whole technique of the operation before being allowed to perform it, moreover, I went sometimes 20 miles a day in my motor and constantly visited the places where inoculations were being carried on, and beyond one aim much inflamed which was in the case of a European who foolishly played hard tennis directly after being done, I cannot honestly remember any untoward result of the operation out of the whole lot-men, women and It was a sight worth seeing in the moinings, the crowds of these people hanging about the roads outside these dispensaries awaiting their turn for inoculation"

With reference to the statistics he supplied, he writes in another communication -

"I am also sending you herewith an abstract of figures from these forms which up to date we have had returned to us as verified, which you can rely upon absolutely -

	No of Subordi	-	Popula	Attacks	
	and other families		tion	Total City	Deaths
Return received from 33 various	6,059	Inoculated	3,071	47	21
departments up to 18th Ap ril 1912	(	Uninocu lated	2,988	204	204

He remarks -

# Comespondence

THE SMITH OPERATION

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In your November number you publish a "special article" entitled "The Vered Question of the Smith Operation" and say "we here reprint two articles on this subject which have recently appeared and to continue our strict imputiality on the subject we give views of both sides. You proceed to republish a letter of an intensely hostile and personal nature which appeared in the Ophthilmic Record of June 1911. Do you call this recent. This letter is of no scientific importance. You do not republish my reply to this letter from the same Journal of April 1912. Is this whit you call strict impartiality. This letter was part of the Kilkelly Smith controvers, what in your special article is made to represent the other side of the question is the republication of an article which has no bearing on the above mentioned letter nor on the Kilkelly Smith controversy. You then doubtless have read the very interesting review by Major Elliot, I M S, in the Ophthalmoscope of September 1911 on

All living under precisely similar conditions "

reports, has been supplied (suppa) At Madias 573 (426 males and 147 females) was the highest number confined at any one time on the 18th December 1911, at Vizagapatam 76 (59 males and 17 females) on the 21st April 1910 and at Calicut 132 (96 males and 36 females) on the 6th October 1911 Lavatory for European males and another for European females are in process of completion in the Madias Lunatic Asylum

New buildings -At the Madras Asylum in 1909, 17 single 100ms for natives in female enclosure, and four single rooms for Europeans in the female enclosure were built The following works which were in process of construction in 1910 were completed in 1911 -(a) A new hospital for 20 beds in female enclosure, (b) dining 100m for European female patients, (c) four single rooms for Europeans in Male Hospital, (d) sixteen single rooms for civil natives (male), (e) Recreation Hall, (f) two single 100ms in the criminal enclosure for Europeans, (g) a leper ward of four single rooms, (h) two observation rooms for European males, and (i) alterations in Assistant Mation's quarters for accommo dating female observation cases The land to the north of the Institution has not yet been acquired for further extension At Vizagapatam in 1909 were constructed i latrine for the warders' lines, in 1910, (1) a block of six single cells for accommodating insanes under observa tion, (2) a pucca test house, and (3) a hospital for females "

On the health of the meaner we may quote the following —

"Statistics of health and treatment of the sick—Sickness and its Causes—The average daily sick was 67 86, 53 57, and 64 64 in the three asylums together in the three years 1909, 1910 and 1911 respectively. The mean for the triennium was 62 02—greater by 9 than the last which was 53 06. This increase is due to the health of many new admissions being bad necessitating their immediate admission into the hospital, and to all acute cases of insanity requiring careful nuising and dieting being also admitted. The principal diseases from which inmates suffered were in order of frequency—Giseases of the digestive system, including dysentery and diarrhea, of the nervous system including mania, melancholia, etc., anomia and debility, tubercular diseases and malarial fever. Coincidental with the increase of dysentery and diarrhea among the population of these diseases among the criminal population at Madras.

Forcible feeding and methods in use—Very seldom resorted to at Vizagapatam and Calicut, but at Madras it is found a necessity. The annual mean number of feedings for the triennium was 1,392. No bad results have accrued, and the method has been found suitable and satisfactory. Nasal feeding is adopted by means of a Jacque's catheter and syphon tubing.

Mortality and its causes—The total number of deaths was 48, 79 and 69 in the three years, or an average of 65 33 per annum (the large number in 1910, includes 12 from cholera in the Madras Asylum)—The average for the previous triennium being 77 67—The chief causes of mortality were (a) tubercle which, as usual, heads the list, 14, 18 and 16 for the three years under report of a total of 39, 64 and 56 respectively in the Madras Asylum (Vizagapatam contributing 0, 1 and 1 of a total of 3, 6 and 6 deaths respectively and Calicut, 0 1 and 3 of a total of 6, 9 and 7 deaths respectively), (b) diseases of the nervous system, and (c) dysentery and catarrhal inflammation of the bowels—The percentage mortality calculated on the daily average strength yields 7 09, 11 06 and 9 19 as compared with 11 87, 16 30 and 9 11 respectively for the previous three years

Epidemics and how they were dealt with—The Vizagapatam and Calicut Asylums were free from epidemics during the three years, and Madras Asylum ii. 1909 and 1911, but in October 1910 a fairly severe outbreak of

cholera occurred There were 22 cases with 12 deaths, a case mortality of 54 55 per cent -the lowest on record in the Institution I quote in extenso from the report of the Superintendent - Every possible means was taken to check the disease, and all cases were treated in the contagious disease sheds a special staff of servants were entertained for the purpose The method of treatment was that advocated by Major Leonard Rogers, CIE, IMS The cause of the outbreak could not be definitely traced but two factors were believed to have played some important part-"one was the fact that the water of the kitchen well was found to be highly contaminated and contained vibrios in great numbers, and it was possible that the water had been consumed by some of the patients who suffered from cholera-the other was that, when the outbreak occurred, several hundred coolies were employed in the asylum by various Public Works Department contractors, and it was possible that one of them might have conveyed the disease by some means or other, but no sickness could be traced amongst these cooles or their families. In the previous triennium (October 1907) there were 14 deaths, and in the one ending 31st December 1905, 19 attacks with 12 deaths, with a case mortality of 82 35 and 63 16 per cent respectively In the former of these the cause was attributed to the conveyance of infection by flies which swaimed consider ably at the time

The nuising of the sick is efficiently carried out by a special nursing establishment. The Superintendent, Madias Asylum, complains bitterly and rightly too, I think, of the pay of matron, nurses, European attendants and inferior staff as being quite insufficient. He has not, owing to this cause, found it an easy matter to get suitable and efficient substitutes to fill vacancies. I am now in correspondence with him and shall shortly submit proposals in detail.

BOMBAY BACIERIOLOGICAL REPORT (1911)

THIS was submitted by Major W Glen Liston, CIL, MD, IMS, the Director

We quote several extracts from this very interesting report —

"The table below shows comparative figures of out put in doses of Anti plague Vaccine for the past five years —

1907	1903	1909	1910	1911
620,923	533,315	593,164	622,690	1,211,170

The output of the vaccine during the past year is a record in the history of the Laboratory. The large increase in the demand for the vaccine tried the resources of the laboratory to its utmost. Work had to be carried on throughout the Christmas and other holidays. All demands for the vaccine were however met with very little additional staff.

During the latter part of the year a number of complaints were received from various quarters regarding the severity of the symptoms, both local and general, which followed inoculation. Even when rigid aseptic precautions were adopted swelling and redness round the site of injection was marked and lasted for three or four days, and the general malaise and fever were more severe than usual. We instituted a very searching inquiry into these complaints. Individual brews were examined as to the length of time that the brew had been incubated and the period which had elapsed between sterilization and actual use. The brews complained about were almost all recent ones, a fact which confirmed our experience in past years.

To avoid unpleasant symptoms in the use of this fresh vaccine, we advised the dose to be reduced from 4 to 3 c c if used within three months of the date marked on the

bottle The protection afforded by the reduced dose was probably less than that produced by the larger dose, but we had to bear in mind the fact that a severe reaction following inoculation always tends to make the operation unpopular

In deciding upon the most suitable dose of vaccine to

use, two points have to be kept in mind

(a) The degree of immunity produced by a given dose, (b) The amount of discomfort (fever, pain and swell-

ing) produced by that dose

Speaking generally the larger the dose of vaccine given the greater is the immunity produced, but the size of the dose is limited by the severity of the reaction which follows moculation, for the larger the dose, the more severe the reaction. In selecting a suitable dose of vac cine, therefore, care has to be taken to give as large a dose as can be borne without great inconvenience this reason when fresh or immature vaccine is used a smaller dose has to be administered than when mature vaccine is used "

After describing the work of Capt Taylor, 1 M 5, on lats it is remarked -

"With these data before us we are in a position to gauge approximately the reproductive powers of rats. A single pair produces, say, 6 rats every two months, these young rats are able to produce young ones in turn in approximately 4 months. Males and females are produced in about equal numbers. On an average, say, one litter of every three produced is des troyed by the parents before they reach maturity. In these cucumstances in less than one year the single pair may have multiplied to 50 pairs If this rate of multiplication were continued for a year and a quarter, the number of lats would be very great indeed. As a matter of fact observations in the field show that such rapid multiplication does not actually take place it is probable that overcrowding, destruction by natural enemies, and disease keep down the numbers. There is another very important factor which has to be taken into consideration in making such calculations. It should be remembered that not every pair of rats is The number of rats we experimented with was too small to yield any reliable estimate on this score, but by a somewhat complicated calculation we reckon that somewhere about one pur in every four may be considered to be infertile in the sense that reproduction in these does not go on at the estimated rate of a litter every two months Even making this allowance but taking no account of the effect of disease and destruction by enemies, it does not seem possible to give a lower estimate than that a single pair of lats may multiply to 40 pans in the course of a year

Experience in the field does not by any means confirm this estimate Difficulties are met with in field work which prevent us making an accurate estimate of the rat infestation of any place. The experience, however, suffices to put us on our guard in making calculation regarding the reproductive power of rats from purely laboratory observations Sufficient has been learned by these experiments to convince us that rats multiply very rapidly and the important deduction can be drawn that any destructive measures against rats must be very thorough and very persistent "

There are numerous reports showing the great eshcacy of anti plague inoculation, and we quote in full the following experiences in H H the Nizam's Dominions

"During the past year a very severe epidemic of plague broke out in Hyderabad (Deccan) Laeutenant-Colonel Drake Brockman, I Ms, came to the conclusion that a vigorous moculation campaign would be the only means of checking the epidemic, as evacuation on any large cale was impracticable Inoculation was done on an absolutely unprecedented scale, a striking example of what energy can accomplish. Up to date only a few records of results have come in, but these with

Lieutenant Colonel Drake Brockman's permission w publish He writes -

'I took every precaution from the first to make it (i.e., inoculation) a success, paying great attention to many little details in order that the records obtained would furnish us with reliable data upon which possibly useful deductions could be made Enclosed I have briefly noted down for your information the details I refer to, and I think that you will agree with me that the whole thing has been thoroughly carried out moculation campaign in this city was started in last September and practically ended in January, a period of about 4 months only, and during that period I was able to moculate over 75,000 human beings, and that too without entertaining any really extra establishment but done with the agencies of my dispensaries and their medical subordinates in charge I think, humanly speaking, that these records could not have been more carefully kept, for the whole campaign was from first to last under my personal direction and supervision, and I never allowed any person to perform the moculation who had not been most thoroughly taught the whole technique of the operation before being allowed to perform it, moreover, I went sometimes 20 miles a day in my motor and constantly visited the places where moculations were being carried on, and beyond one aim much inflamed which was in the case of a European who foolishly played hard tennis directly after being done, I cannot honestly remember any untoward result of the operation out of the whole lot-men, women and children It was a sight worth seeing in the mornings, the crowds of these people hanging about the roads outside these dispensaries awaiting their turn for

With reference to the statistics he supplied, he writes in another communication -

"I am also sending you herewith an abstract of figures from these forms which up to date we have had returned to us as verified, which you can rely upon absolutely -

	No of Subordi notes and other families	-	Popul« tion	Attacks	Deaths
Rotuin received from 33 virious departments up to 18th Ap ril 1912	6,059 {	Inoculated Uninocu lated	3,071 2,988	47 204	21 204

He remarks -

# Conpespondence.

# THE SMITH OPERATION

To the Editor of "The Indian Medical Gazette"

SIR,—In your November number you publish a "special article" entitled "The Vexed Question of the Smith Operation" and say "we here reprint two articles on this subject which have mostly appeared and to continue the same and articles. which have recently appeared and to continue our strict in putiality on the subject we give views of both sides? You proceed to republish a letter of an intensely hostile and personal nature which appeared in the Ophthalmic Record of June 1911. Do you call this recent? This letter is of no scientific importance. You do not republish my reply to this letter from the same Journal of April 1912. Is this whit you call strict impartiality? This letter was part of the Kilkelly Smith controlersy, what in your special article is made to represent the other side of the question is the republication of an article which has no bearing on the above mentioned letter nor on the Kilkelly Smith controversy. You then faish by saying that "Those interested in the subject will-doubtless have read the very interesting review by Major Elliot, I M S, in the Ophthalmoscope of September 1911 on

<sup>&#</sup>x27;All living under precisely similar conditions'"

Di Deirick Vail's little book There again you do not tell your readers that the "little book" was not a little book, but the reprint of an article published in the Lancet clinic of Cincinnati, not purchasable in the market, but only to be had from the writer as a favour. It is unusual, I think, to review anything which your readers cannot purchase You do not refer your renders to Dr Vail's and my replies to that review which appeared in the Ophthalmoscope in the current year

Major Elliot's review and replies are composed for the most put of intensely hostile and personal criticism of me apait from the merits and dements of the operation with due deference I would invite your attention to the fact that what appears on this subject is divisable into two issues—on the one hand myself personally whether friendly or hostile on the other hand, the scientific aspects of this operation These two issues are mixed up and confused by the opponents of this operation of what interest to science are my personal doings! (They might be of interest, if the writers were honoring me by writing a posthumous biography)

I think it would be in the interests of the Indian Medical

Gazette if the articles and letters copied from other journals were confined to the scientific and practical side of intracap

sular extraction

Yours truly. H SMITH. LILUT COL, IMS

AMRITSAR

[The proof was long in hand and at time of its printing the reply of Lt Col Smith had not been seen Moreover we also published a still longer article laudatory of Lt Col Smith's work In this matter we still say that we have only one desire, mz, to lay before our readers an impritual account of the views of ophthalmic surgeons on this interesting and important subject -ED ]

#### BLUE PATCHES ON NEW BORN INFANTS To the Editor of "THF INDIAN MFDICAL GAZETTE"

SIR,—Recently a consespondent published a note on the above subject and considered these patches, if I remember rightly (I can't put my hand on the copy of the article at

the time of writing) as an interesting point in anthropology
I should like to point out these patches were noted by the Census Commissioner of the Punjab eighteen years ago and I have taken some interest in them. These blue patches are to be seen in the skin of Mongolian infants Every Chinese, every Roman, Japanese and Malay child is boin usually with a daik blue patch of inegular shape in the lower social region. The patch may be equally divided on both sides of it may not be laterally disposed. It may be only the size of a shilling or at other times it may be as large as the hand. of a shilling of at other times it may be as large as the hand. In addition sometimes there we also other patches on the trunks and limbs but never on the face. They have been in raier cases, I understand, so numerous to cover nearly half the surface of the body. These patches may be likened to a bruise as by a fall. They usually disappear in the first year of life, but sometimes last for several years.

Up to a year ago and in little over a year the midwife work ingunder me in Lahore city had 174 cases with such blue patches. Most of the children born in the Lahore city have these patches and the children of Hundus and Mahammedans.

these patches, and the children of Hindus and Mahommedans are equally affected. There is generally one big patch about the region of the sacrum, though there are sometimes several smaller ones on the lower part of the back. Though she ascribes them to the placenta, in my opinion they cannot be produced by it as, of course, we should expect them also in

Europeans

My observations as to their origin are as follows—These patches are due to the effect of pressure on the back of the child due to the method of native (and other oriental) women tying their skirts about the level of the umbilicus. There is usually a knot in front and this may at times change its position. This presses against the lower part back of the child in uter o and is liable to make the part pressed unduly congested and premented as a result of the interimitation pressure destroying delicate vessels in the delicate skin unduly congested and pigmented is a result of the intermit tent pressure destroying delicate vessels in the delicate skin of the child. When one presses the finger on a table or book at first there is arrenia, and when the pressure is relieved there is slight hyperemia. In the case of the unborn infant the pressure is probably intermittently (so to speak) sufficient to injure the delicate vessels and probably lead to the extravasation of blood as results in a bruise It is more commonly prevalent in normal pregnancies, because in normal pregnancies some part of the back is towards the front, and is more likely to be seen about the sacial region because the sacial region is first likely to come under this pressure Likewise the squat ting habits of women in the East may help to produce the other patches on the body according as the child does or does not change its position. In Europeans this patch is not seen simply because European women wear corsets which distribute the pressure of the skirts, and if not wearing corsets they usually go in for a loose gown which is kept up from the shoulders There is no 'squatting' with them but reclin ing on a sofa or couch This appears to me to be the cause ing on a sofa or couch. This appears to me to be the cause of these patches which are not pathologic and disappear usually in the first 18 months of the child's life.

At the beginning of this year I desired further information about these patches, and brought the matter before the Punjab Branch of the British Medical Association, but none of those present had any experience of them

A G NEWELL, MD, DPH,

Health Officer, Lahore

[See I M G, August 1912, p 306, for Dr Fink's paper In our Editorial Note (p 324), we showed that Bealz' claim that these marks are a sign of Mongolium blood could not be sustained. Dr Newell's theory is of interest Further correspondence is invited —ED, I M G]

#### FORMALIN AGAINST FLIES

To the Editor of "THE INDIAN MEDICAL GAZETTL"

SIR,—In reply to D P H's query in The Indian Medical Gazette of December 1912, regarding the best way of using formalin in order to kill flies, I found the method of exposing it in shallow plates to be useless. An excellent way is to sprinkle the mixture of formalin, milk and water in tiny pools of from 1 inch to about 1 inch in diameter on the floors, shelves, tables, etc, when the fires readily drink it I used this method during the last rains in the jail kitchen here with great success

RAJKOT, 13th December 1912 Yours faithfully, W M HOUSTON Major, i m s

#### RE BEDBUGS AND THEIR DESTRUCTION, 1912

To the Editor of "THL INDIAN MEDICAL GAZETTE"

SIR,-I am glad to note that Sub Asst Surgeon Satkarı Ganguli after trying turpentine on bedbugs writes his experiences in the October 1912 issue of this your esteemed journal, and passes his glowing opinion on its effectiveness in destroying them. This is as you know what I claimed in in destroying them This is as you know what I claimed in my article of the 28th August 1911 in the October 1911 issue of the journal, which was the first article I wrote on the subject

Please allow me to explain fully that I use the medicinal tun pentine (spirit), and to prevent evaporation I make it into an emulsion of equal parts of sorp suds. Without sorp suds an emulsion of equal parts of sorp suds transcored to the bedbugs having very smooth, and hard backs the turpentine alone runs off, and the sum of the bedbugs having very smooth, and hard backs the turpentine alone runs off, and the sum of th they sometimes can slip away and escape destruction. The suds fixes the turpentine to them in a way in which they can never escape with their life.

HOOLUNGOORIE, MORIANI P O, ASSAM, 31 d December 1912

Yours, &c, TAFOZOOL HOOSAIN, NATIVE DOCTOR

# THERAPEUTIC NOTICES

# "ECSOLENT COMPOUNDS"

WL find we did an unintentional injustice to the Ecsolent Compounds in our issue of November last and therefore quote in full the extract from the British Medical Journal of 21st January 1911 (p. 144) —

"In the British Medical Journal of February 2nd, 1910, 136, there appeared a short notice of three pre results appeared a short notice of three preparations supplied by the Ecsolent Compounds (Saracen Buildings, Snow Hill, E.C.) intended for the treatment of ecrema and other skin affections. These comprises an oint ment, a soap and a dusting powder. The ointment is made with a basis of soft paraffin, and contains zinc oxide, stated boile acid, and resorting with small quantities of a number of antisprite and a sometic substances, the soap shows no antiseptic and atomatic substances, the sorp shows of free alkali, but is slightly superfatted, and both this and the powder contain some of the aromatic and antiseptic ingledients used in the ointment, while the basis of the powder is tale, with zinc oxide, starch, and boric acid. We expressed the opinion that "from the composition of these prepriations they may be expected to prove useful for the purpose for which they are intended." Practical experience has confirmed this expression, expressed nearly twelve. has confirmed this expectation, expressed nearly twelve months ago. We have had the opportunity of satisfying our selves that the ointment is of great value in the treatment of itching eruptions, especially about the anis and genitals, and the powder has proved an excellent application in cases of troublesome intentingo in the folds under the breasts, on the

abdomen, and elsewhere In addition to our own limited but decidedly favourable experience, we have had submitted to us a large body of authentic evidence spontaneously offered by practitioners throughout the country. Their statements refer chiefly to cases of eczema, erythema, psoriasis, pruritus ani, and various other skin affections. The names and professional position of those who testify to the usefulness of the Ecsolent Compounds are sufficient guarantee of their good faith." good faith

# TABLOIDS EMETINE IN THE TREATMENT OF AMŒBIC DYSENTERY

(BURROUGHS, WELLCOME & Co)

Ir may be remembered that in 1858, Surgeon E S Docker, AMS, then stationed in Mauritius, first advocated the use of large doses of specacuanha in dysentery, and succeeded in of large doses of specacuann in dysentery, and succeeded in seducing the dysenteric death rate in the island from 10 18% to 2%. The more recent investigations of Major Leonard Rogers are fresh in everyone's mind, and have demonstrated that the salts of emetine are specific in amobic forms of dysentery and that moreover, they can be given with safety without inducing the serious nausea and vomiting character istic of specacuanha. In one case, an amount of emetine corresponding in four weeks to 1,000 gis of specacuanha, was well borne.

well borne
That specacuruha should have been so suddenly and so dramatically schabilitated, is one of the surprises of science when we recall that not very many years ago its use on active service was seriously banned by a committee of experts sit ting in London The investigations of Vedder an American officer stationed in the Philippines, formed a fresh starting point Vedder found that fluid extract of specacuraha inhibited the growth of discenting amples on who collected furnish officer stationed in the lamphines, formula in the point. Vedder found that fluid extract of specacionha inhibited the growth of dysenteric amæbæ in vitio—later furnishing the observation that broth cultures of dysenteric amæbæ were destroyed by emetine. Upon these facts Rogers serzed, with keen perception of the practical clinical application of the discovery. "I therefore," he says, "tested the effects of the solutions of emetine on A. Histolytica, in dysenteric stools." All the force of Rogers' investigations lies in these last three words. He found in point of fact, that amæbæ in dysen teric stools were killed by a dilution of 1 in 10,000 of emetine by drophlande, and rendered inactive even by so high a dilu hydrochloride, and rendered inactive even by so high a dilution as 1 in 100,000. Microscopic examination of the dysenteric ulcers of an advanced case which ended fatally failed to neveal a single living amoba, after a dosage of 31 gis in 21

days
The keratin coated product of emetine constitutes The keratin coated product of emetine constitutes yet another advance and has been introduced in order to enable the hydrochloride to be given orally. The keratin coating facilitates the contents of the product reaching the patho genic areas of the bowel, unimpaired in activity and without interfering with gastic processes 'Tabloid' Emetine Hydrochloride gr. I keratin coated, is especially suitable for routine treatment in dispensary and out patient work, since it enables the patient to take the remedy himself.

Issued in bottes of 25

## PERSPIRATION AND TUBERCULOSIS INFECTION

It a recent important communication to the Paris Acidemy of Medicine Professor Poncet detailed the result Acidemy of Medicine Professor Poncet detailed the result of experiments regarding the transmission of tuberculosis by perspiration. He related how he made a careful examination of the perspiration and discovered that it contained 42% of tuberculosis microbes. Thus Professor Poncet alleges the danger of contagion from the clothes of persons suffering from tuberculosis is great and therefore all the clothes touched by the patient must be disinfected. Reference has already appeared in these columns to the increasing use of IZAL in up to date laundries and in view of Poncet's announcement, the importance of this precaution is emphasised. the importance of this precaution is emphasised

MACKII'S WHITE HORST WHISKY needs but little advertisement. It is well known and well reputed and recent analysis shows that it is pure old high class whisky. The firm has a high reputation for honesty and fair dealing

MR A and M ZIMMERMAN send us accounts of two preparations of their PFILIDOL and AZODOLFN The former is a light red powder easily soluble, the staining of linen is easily washed out. Azodolen is a combination of Pellidol and Iodolen both are most useful ountments

Roche Products by Hoffmann La Roche Chemical Works are well known Their "DIGALFA" is a well known digitalis preparation for hot climates, as are also Thior and Thiornol A new general sedative is called OMNOON Roche, a soluble opium derivative, originated by Sahli

MFFCK, of Daimstad, send is a beautifully got up and illustrated pamphlet on the history and present condition of their well known chemical works and factories, published in

THE University of Glessin has recently conferred the degree of Doctor of Medicine on Mr Einst Leitz (Junior), a partner in the celebrated firm of opticians, Leitz & Co, 18 Blessich Co. 18, Bloomsbury Sq , London

THE Cambridge University Piess is about to publish a series of volumes dealing with Public Health, under the editorship of Dr G S Graham Smith, of Pembroke College, and Mi J E Purvis, of St John's

C F BOEHRINGER & SOEHNE send us literature and specimens of the Arsenoferratose and a small simple color-metric apparatus for estimation of hemoglobin. The local agents are Messrs Hadenfeldt & Co, Calcutta

On page 455 of our November issue we omitted to give the name of the makers of Solution D. They are R. Sumner & Co. Ld., Lord Street, Liverpool

# Service Motes

THE NEW YEAR'S HONOUR LIST

THE names of the following Medical Officers appear in the Honour's List of 1st January 1913 -

CIE

LIEUTENANT COLONEL W J BUCHANAN, I MS, Inspector General of Pusons, Bengal, and Editor, Indian Medical

MAJOR W GLEN LISTON IMS, Director of the Parel Laboratory, Bombay, and well known for his excellent work on Plague and on mosquito malaira

#### KHAN BAHADUR

HAJI KHAJA MUHAMMAD HUSSAIN, Chief Officer, Banganepalle State, Madras Medical

RAI BAHADUR

SENIOR SUB ASSISTANT SURGEON SUHALL SINGH, 21st

1st Class Sub Assistant Surg on Hira Singh, Simla KHAN SAHIB

1ST GRADE SUB ASSISTANT SURGEON COOVERJI RUSTOMII

AVARI, Bombay
18T GRADE MILITARY SUB ASSISTANT SURGEON SARFUDIN, Quetta
SUB ASSISTANT SURGEON MIRZA MUHAMMED BEGG,

Bugand

RAI SAHIB

SENIOR ASSISTANT SURGEON LALA UMRA RAJA LAL, Punjab

DR BHUBANESWAR PRAMANIK, Senior Assistant Surgeon, Bhagulpur

P GOVINDA PILLAI, Sub Assistant Surgeon, Buima Kaisar-i Hinl Medals

(Gold 1st class)

MAJOR H W GRATTAN, RA, MC, in charge of the Enteric Convalescent Depôt, Naini Tal
DR JOHN A Tuiner, MD, DP H, the well known Health Office of Bombay
MAJOR E R ROST, IMS, Civil Suigeon, Rangoon, well-known for his ieseniches on Lepiosy
MAJOR E L WARD, IMS, recently Superintendent, Central Jail, Lahoie

(Silver 2nd class)

SUB ASSISTANT SURGEON MAKKHAN SINGH, Cantonment Hospital, Rawal Pindi

MRS ALICE M PENNER,
Medical Mission
Miss Lydia Woerner, MD, of American Mission,

Miss Lydia Woerner, M.D., of American Mission, Rajamundry, Madras
BABU RAMDHARI SINGH, Medical Practitioner and Vice

Chairman, Motihair Municipality

LIEUT COLONEL WILLIAM OWEN, Bengal Medical Service, LIEUT COLONEL WILLIAM OWEN, Bengal Medical Service, retired, died at Western Super-Mare, on November 1912 He was born on 21st March 1852, and educated at Trinity College, Dublin, where he took the BA in 1873, and the MB in 1874 He also took the LRCSI in 1873, the LM Rotunda in 1874, and the FRCSI in 1885 He entered the IMS as Surgeon on 31st March 1877, became Surgeon Major on 31st March 1859, Surgeon-Lt Colonel on 31st March 1897, was placed on the selected list from 25th October 1902, and retired on 24th March 1903 He served in Afghanistan in 1878 80, and was present at the battle of Ahmed Khel, and the action of

Alzu, receiving the medal and clasp, and in Egypt in 1882, when he was in the action at Tel el Kebir, and received the Most of his service, medal with clasp, and bionze star Most of his service, however, was passed in civil employment in Bengal, where he was for some time Deputy Sanitary Commissioner of the Western Bengal Circle, afterwards Civil Surgeon of Pabna, and finally for several years Principal Assistant to the Opium Agont, Bihar

LIEUTENANT COIONEL TR MACDONALD, I MS (Ret) In response to a formal request brought to him by a deputa on, Dr T R Macdonald, now of Inverness, visited the tion, Dr TR Macdonald, now of inverness, visited the Island of Skye this month, in order to receive from the representatives of the purish of Snizort and South Snizort an illuminated address in acknowledgment of the services rendered by him to the islanders. The presentation was made at the United Free Church Manse of Snizort, where there was a large gathering, headed by the Rev D C there was a large gathering, headed by the Rev D C Macdonald, of Kilmuir In acknowledging the address Lieutenant Colonel Macdonald said it was not the first visible token of gratitude and goodwill that he had received from the islanders. They had presented to himself and his wife many gifts at the time of his actual departure from the island, and these rud the address would be the most cherished. island, and these and the address would be the most cherished of his possessions, and of those of his descendants. They would be valued as coming from the people of the "Isle of Mist," to whom they were proud to belong. Dr. Macdonald was for over twenty years an officer in the Indian Medical Service, and served also in Egypt during the first Egyptian campaign and the subsequent outbreak of cholera. Returing with the rank of Lieutenant-Colonel, he devoted himself for a considerable number of years to the service of the Island. of Skye, taking up work there as resident medical officer of the Gesto Hospital During his tenure of this office he initiated and successfully carried through a movement which resulted in the provision of a Queen's nurse for Snizort and South Snizoit, and in many other medical connexions greatly benefited the island. On finally giving up active medical work he took up residence at Inverness -B M J, 30th November 1912

Lieutenant Colonel Thomas Rankin Macdonald was boin on 17th May 1853 Educated at Edinburgh University, where he took the degrees of M B C M in 1879, also taking the L R C S Ed in 1879, and the M R C S in 1880, and entered the I M S as Surgeon on 31st March 1880 He became Surgeon Major on 31st March 1892, Surgeon Lt Colonel on 31st March 1900, and retired on 20th June 1900 He served in the Egyptian war of 1882, and was present in the action of Tel el Kebir, receiving the Egyptian Medal and the Khedive's bronze star In the following year, 1883, he was one of the eight officers of the Bengal Medical Service deputed for service in Egypt, in the great cholera epidemic of that year service in Egypt, in the great cholera epidemic of that year Entering civil employment in Bengal in 1885, he served as Civil Surgeon of Mymensingh and then of Backerganj In Civil Surgeon of Mymensingh and then of Backergan I in 1886 he went to Burma as Superintendent of the Rangoon Central Jail After some years he was transferred to the post of Superintendent of the Jabalpur Central Jail In 1893 he returned to Bengal, and, after a short period as Deputy Sanitary Commissioner of the Western Circle, was posted as Civil Surgeon of Saran, where he spent six years, moving to Murshidabad shortly before he left India After his retirement, he practised for some years at Hawick, and then in the Island of Skye

DEPUTY SURGEON GENERAL JOHN EDWARD MOFFATT, DEPUTY SURGEON GENERAL JOHN EDWARD MOFFATT, late of the Aimy Medical Deputment, died at Upper Rathmines, Dublin, on 20th September 1912, aged 86 He qualified as L R C S I in 1850, and subsequently got the degree of M D at McGill University, Montreal He entered the A M D on 14th March 1851, more than sixty years ago, and retired as Deputy Surgeon General, with a step of Honorary rank, and the title of Surgeon General, on 27th September 1882 He served in the Kafir Wai of 1851 53, and received the medal After he had retired from the Aimy, in 1882 he was orduned as curate of Marylebo rough. Ossory, and subsequently for twenty six years held rough, Ossory, and subsequently for twenty six years held the incumbency of Milltown, Dublin

BRIGADE SURGEON THOMAS STICK VLALE, Bengal Medical Service, retired, died at Croydon on 1st December 1912 He was born on 25th March 1831, educated at University College, London, took the M R C S in 1854, and the L S A in 1855, and also subsequently in 1872 the M D of St Andrews He entered the I M S as Assistant Surgeon on 27th January 1858, became Surgeon on 27th January 1870, and Surgeon-Major on 1st July 1873, retiring with a step of honorary rank on 22nd February 1885 During the Crimean War he served in 1854 55 in the Army Civil Hospital at the Dardanelles He also served in the Indian Mutiny in 1858, in the Bhutan Expedition on the North East Frontier of India, in 1865 66, and in the second Afghan War in 1879 80, receiving the medal for each campaign, with

a clasp for the last His whole service was passed in military by ment His last item of service was a rather curious He went home in 1884, intending to retire at the end employment of his furlough. After he had gone to England, it was discovered that he was nine days short of Indian service for pension, and he had to return to India, on the expiration of his furlough, and put in nine days further duty

WE quote the following notice of one of the oldest I M S retired officers, viz, Sii Geo Birdwood from the Statesman

We quote the following notice of one of the oldest I M S retired officers, viz, Sii Geo Birdwood from the Statesman of January 5, 1913—

"This has been a week of notable anniversaries, but few of these happy occasions have been of more interest to the public in general and the Anglo Indian community in particular than the attainment of octogenarian rank by Sir George Birdwood, K C I E, the famous Anglo Indian doctor, scientist and man of ait and letters—Sii George—who has received innumerable congratulations from friends in all parts of the world—was born at Belgium, Western India, on December 8th, 1832, and joined the Indian Medical Service in 1854—Three years later he took part in the Persian Expedition of 1857, but, with this exception, he remained at Bombay until 1868—He was Professor at the Grant Medical College, founder of the Victoria and Albert Museum, Bombay, designer of the Victoria Gardens, Registrar of the University, and Honorary Secretary of the local Royal Asiatic Society, and his advice was eagerly sought by Sir Butle Frere and other governors. On his return to this country he at once had an important post offered him in the India Office—Here his knowledge of the manners of life of the people of India and the economic conditions rendered his services of the utmost utility. It was his book "The Industrial Arts of India," which first awakened this country to a realisation of what India was doing in that way" doing in that way

CAPTAIN J B D HUNTER, IMS, an officiating Agency Surgeon of the 2nd class, is granted privilege leave for three Surgeon of the 2nd class, is granted privilege leave for three months combined with furlough for seven months, and study leave for eight months, with effect from the 10th December 1912, under Articles 233 and 308 (b) of the Civil Service Regulations and the Regulations prescribed in the Notification by the Government of India in the Army Department, No 31, dated the 13th January 1911

CAPTAIN D HERON, I MS, is appointed to officiate as an Agency Surgeon of the 2nd Class, and is posted as Medical Officer, Seistan Consulate, and ev officio His Britannic Majesty's Vice Consul for Seistan, with effect from the 10th December 1912

LIEUTENANT COLONEL A L DUKE, Indian Medical Service (Bengal), an Agency Surgeon of the 1st Class and Residency Surgeon and Chief Medical Officer in Baluchistan, is granted privilege leave for three months, with effect from the 28th November 1912

MAIOR J N MACLEOD, CIE, Indian Medical Service (Bengal), an Agency Surgeon of the 2nd class and Civil Surgeon of Quetta, is appointed to hold chyrge of the current duties of the office of the Residency Surgeon and Chief Medical Officer in Baluchistan, in addition to his own duties, with effect from the 28th November 1912, and during the absence on privilege leave of Lieutenant Colonel A L Duke, Indian Medical Service (Bengal), or until further unders or ders

WE are glad to hear that Dr Lukis, son of Sir Pardey Lukis, has taken the gold medal at the M D Examination of London University It will be remembered that about ten London University It will be remembered that about ten years 190 Sir Pridey himself took the gold medal at the same examination, a fine record

THE following postings and transfers are ordered in the Civil Medical Department, Burma —
MAJOR C C S BARRY, I MS, on return from leave, to be Superintendent, General Hospital, Rangoon, in place of Major T Stodart, I MS, transferred

Major T Stodart, I Ms, to be Civil Surgeon, Mogok, in place of Captain E T Harris, tinnsferred

MILITARI ASSISTANT SUPGEON A BALDWIN D'SOUZA has been appointed to act as Civil Surgeon, Jacobabad, from the 31st October 1912

Lieutenant Colonel W H B Robinson, Indian Medical Service (Bengal), an Agency Surgeon of the 1st Class and Civil Surgeon, Ajmei, and Administrative Medical Officer in Rajputing, is granted privilege leave for three months combined with furlough for four months, and study leave for five months with effect from the 7th November, 1912, under Articles 233 and 308 (b) of the Civil Service Regulations, and the Regulations prescribed in the Notification by the

Government of India, in the Army Department, No 31, dated the 13th January 1911

LIEUTENANT COLONEL R C MACWATT, Indian Medical Service (Bengal) an Agency Surgeon of the 2nd Class, on return from leave, is appointed to officiate as an Agency Surgeon of the 1st Class and as Civil Surgeon, Ajmer, and Administrative Medical Officer in Rajputana, with effect from the 7th November 1912, and until further orders

LIEUTENANT COLONEL W MOLESWORTH, IMS, Acting Professor of Medicine, Madras Medical College, was granted combined leave for one year from or after 15th December

MAIOR D C KEMP, INS, was due buck from furlough on 5th December

CAPTAIN F C ROGERS, I M S , 18 due out from furlongh on 19th April 1913

CAPTAIN C A F HINGSTON, I M S, is due out from fur lough on 6th May 1913

J QUIRKE, IMS, is due out from furlough on 28th May 1913

CAPTAIN J J ROBB, INS, is due out from furlough on October 1913

MAJOR CORNWALL, I MS, is due out on 9th September

His Excellency the Governor of Bombay in Council is

pleased to make the following appointments —
Lieutenant Colonel J B Smith, MB, Mch (RUI)
DPH (Cant), IMS, on return to duty, to be Civil Sui (R U I ), geon, Poona

MAIOR A HOOTON, IMS on relief, to be Medical Officer to the Kathiawar Political Agency and in charge West Hospital, Rajkot

MAJOR W M HOUSTON, MB, BCh (Dub), IMS, on relief, to do duty as Civil Surgeon, Belgrum

CAPTAIN J LUNHAM, WB, PCh (RUI), IMS, on relief, to act as Civil Surgeon, Karwai, vice Major W D A Keys, MD, BS (Dub), IMS, proceeding on leave

MAJOR W D A KFIS, MD, BS (Dub), IMS, is granted from the 1st January 1913, or subsequent date of relief, such privilege leave of absence as may be due to him on that date and two months and nine days study leave, in combination with furlough for such period as may bring the combined period of absence up to one year

LIFUTENANT COLONFL T E DISON, WB, CM (Edin), DPH (Bu), IMS, has been allowed by His Milesty's Secretary of State for India a further extension of furlough

CAPTAIN F W SUMNER, I MS, Civil Surgeon, on return from leave, is posted to Farrukhabad

MAIOR F S C THOMPSON, I MS, is appointed substantively to the Jul Department in Bengal and is confirmed in his appointment as Officiating Superintendent, Central Jul, Alipore, with effect from the 28th August 1912, nice Mi M S Emeison, retired

CAPTAIN N T WILLS, I MS took over medical charge of Deia Ghazi Khan, relieving Capt. H C Keates, I MS, who was posted as of Civil Suign of Campbellpin from 21st

In exercise of the powers conferred by section 6, subsection (1), clause (c), and section 10 of the Indian Universities Act 1904 (VIII of 1904), His Excellency the Chancellor of the Calcutta University is pleased to nominate the following gentlemen to be Ordinary Fellows of the University

following general sets of the set 
The following Semon Assistant-Surgeons with the Honorary rank of Lieutenant are promoted to be Semon Assistant Surgeons with the Honorary rank of Captain, Joseph Lee

Richard Sharples Michael Courtney John Charles Gillmon Richard Thomas Mulphy

THE 1et rement of Major (now Lieutenant Colonel) Hubert Malius Eurle has effect from the 28th July 1912, and not 27th July 1912, as notified in the London Gazette of the 13th August 1912

THE promotions of the undermentioned officers to their present ranks are ante dated as below

Major George McPherson, MB, FRCSE, from the 28th January 1910, as notified in the London Gazette of the 23rd May 1910, to the 28th July 1909

Captain Richard Eduard Flowerden, WB, from the 26th March 1912, as notified in the London Gazette of the 18th June 1912, to the 30th January 1912
Captain Berkeley Gale, MB from the 31st January 1912, as notified in the London Gazette of the 13th August 1912, to the 30th January 1912

CAPTAIN N W MACWORTH, I MS, made over charge of the Purner Jul to Major J C H Leicester, I MS, on the forenoon of the 18th November 1912

MAJOR E C MACLEOD, IMS, on leturn from leave, is appointed to be Civil Surgeon, Dairing

SURGEON GENERAL H G HATHAWAY, British Service, to be Deputy Director of Medical Services, 8th (Lucknow) Division, with effect from 19th November 1912, vice Surgeon General L E Anderson, British Service, vacated

COLONEL D ST J D GRANT, IMS, to be Assistant Director of Medical Services, Kaiachi Bilgade, with effect from 30th October 1912, vice Colonel R B Roe, IMS, transferred

On relief by Lieutenant Colonel W B Lane, IMS, on leturn from leave, Major F O N Mell, MB, CM, IMS, Officiating Inspector General of Prisons, Central Provinces, leverts to his substantive appointment of Superintendent, Cential Jail

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Major F O N Mell, MB, CM, IMS, Superintendent, Central Jail Nagpur, to the executive and medical charge of the Nagpur Central Jail

ON relief by Major Mell, Major C H Bensley, MRCS. LRCP, IMS, Superintendent, Central Jail, Nagpur 18 transferred in the same capacity to the Central Jail, Jubbulpore

On the termination of his course of institution in Malarialogy at Delhi, 1st Class Military Assistant-Singeon J. A. F. Harvey, Civil Surgeon, 1s reposted to the Mandla

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to reappoint 1st Class Military Assistant Surgeon J A F Harvey, Civil Singeon, Mandla, to the executive and medical charge of the Mandla District

CAPTAIN W TARR, MD, FRCS, IMS, Civil Surgeon, Pachmarlu, is reposted to the Nimar District

LIEUTENANT-COLONEL J B SMITH, MB, MCh (RUI), DPH (Cant) IMS, has been allowed by His Majesty's Secretary of State for India an extension of furlough for

Major C Milne, I Ms, Civil Surgeon, Mussoone, was granted privilege leave for one month and seven days, from the 3rd January 1913

CAPTAIN A W HOWLETT, IMS, on completion of his special duty, is appointed to officiate as Civil Surgeon of Mussooree, vice Major C Milne, I MS, granted leave

MATOR S. P. JAMES, I M.S., Secretary to the Director General, Indian Medical Service (Samtary) is placed on special duty under the orders of that officer with effect from the 22nd November 1912

CAPTAIN A G MCKENDRICK, I MS, 18 appointed to be Secretary to the Director General, Indian Medical Service (Sanitary), sub pro tem with effect from the 22nd November 1912 rice Major S P James, I MS, on special duty, and until further orders

MAJOR W S WILLMORE, IMS, Civil Surgeon, was on study leave from the 2nd September to the 31st October 1912

THIRD Class Civil Sub Assistant Surgeon Harendia Nath Mittra held charge of the current duties of the office of Civil Surgeon at Gangtok, in addition to his other duties, for the period from the 11th to the 21st October 1912, during the absence on privilege leave of First Class Military Assistant Surgeon J N Turner, Indian Subordinate Medical Depart

FIRST Class Military Sub Assistant Surgeon Wahid Ali, Indian Subordinate Medical Department, held charge of the current duties of the office of Civil Surgeon at Gangtok, in addition to his other duties, for the period from the 22nd October to the 10th November 1912, during the absence on privilege leave of Frist Class Military Assistant Surgeon I. N. Turner, Indian Subordinate Medical Department J N Turner, Indian Subordinate Medical Department

ON return from leave on 10th October Major R Hend, IMS, resumed charge of the duties of Professor of Midwifery, Lahore Medical College

CAPTAIN H R DUTTON, I MS, Civil Surgeon, Midnapore, has passed the colloquial test examination in Benguli

UNDER the provisions of Article 260 of the Civil Service Regulations, privilege leave for three months is granted to Mi C G Evers, LMS (Mad), LRCP & S (Edin), DPH (Edin), Civil Surgeon, Meighn, with effect from the 20th December 1912

ON completion of the special duty in connection with Stegomyia Survey in seaports in Burma, Second Class Military Assistant Surgeon D D Stewart is appointed to be Civil Surgeon, Mergui, in place of Mi C G Evers, L M S (Mad), LRCP & S (Edin), DPH (Edin), proceeding on leave

UNDER Regulation 1 (1) (B) of the regulations for the nomination and election of members of the Legislative Council of the Lieutenant Governor of the United Provinces of Agra and Oudh, the Hon'ble the Lieutenant Governor, with the previous synction of His Excellency the Governor General, is pleased to nominate the following gentlemen as members of that Council—

Colonel Courtenay Clarke Manifold, IMS, Inspector General of Civil Hospitals

Lieutenant Colonel Charles Mactaggait, CIE, IMS,

Inspector General of Prisons

MAJOR C R BAKHALE, I US, was granted privilege leave of absence for twenty two days, with effect from 12th December 1912

ABOR EXPEDITION, 1911 1912—Grant of India General Service Medal—I His Majesty the King has been pleased to command that the "India General Service Medal, 1908" in silver, with clasp, "Abor, 1911 12," shall be granted to all troops who took part in the Expedition, and served, under the orders of Major General H Bower CB, Commanding the force, at or beyond Kobo between the 6th October 1911, and the 20th April 1912, both dates inclusive

ON letuin from leave Lieutenant Colonel D T Lane, I VS, was posted to Umballa as Civil Surgeon

ON return from leave Lieutenant Colonel D Ronaldson Clark, I M S, was posted as Civil Surgeon of Lahore

MAJOR P S C MORF, IMS, was posted to Sialkot as Civil Surgeon on return from leave

Major J G G Swan, I ms , has been transferred as Civil Surgeon from Dalhousie to Jullundar

MR I U NASIR was posted as Civil Surgeon of Hoshiai pur on retuin from leave

MAJOR S C EVANS, MB, CM (Edin), IMS, has been allowed an extension by one day of the furlough granted to him in Government Notifications No 5347, dated the 5th September 1911 and No 1701, dated the 12th March 1912

WITH reference to Government Notification No 8485, dated the 10th December 1912. His Excellency the Governor in Council is pleased to appoint Assistant Surgeon Y G Nadgir, LM & S, to act as Civil Surgeon Karwar, from the date of departure on leave of Major W D A Keys, MD, BS (Dub), IMS, pending the arrival of Captain J L Lunham, MB, BCh (RUI), IMS

MILITARY ASSISTANT SURGEON A W HAZLE, ISMD, in medical charge of the Military Police Battalion, Dibrugail, is allowed special privilege leave for one month, under the orders contained in letter No 1590 EB dated the 17th July 1912, from the Government of India in the Foreign Department combined with purpless leave for one month, under ment, combined with privilege leave for one month under Articles 250(b) and 260 of the Civil Service Regulations, with effect from the 5th December 1912

CAPTAIN FLEMING BARNARDO, IMS, Civil Surgeon, Rengal, has passed the examination for F R C S Edin burgh

CAPTAIN W GILLITT, I MS, on leave is appointed to be Superintendent of the Bhagalpur Central Jail

MAJOR G Y C HUNTFR, I MS, on leave, is appointed to be Superintendent of the Buxar Central Jail

Major J W Lethbridge, Indian Medical Service (Madras) an Agency Surgeon of the 2nd class, is granted privilege leave for two months and two days, combined with furlough for eleven months and twenty two days and study leave for nine months and nine days, with effect from the 13th October 1912, under Articles 233 and 308(b) of the Civil Service Regulations, and the Regulations prescribed in the Notification by the Government of India in the Army Density ment. No. 867 dated the 6th September 1912 partment, No 867, dated the 6th September 1912

SENIOR SUB ASSISTANT SURCEON RAM SARUP held charge of the current duties of the office of Medical Officer, Mewar Bhil Corps, for the period from the 13th to the 18th October 1912, inclusive

CAPTAIN J McPherson, Indian Medical Service, an officiating Agency Surgeon of the 2nd class, is posted, on return from leave, as Medical Officer, Mewar Bhil Corps, with effect from the 19th October 1912.

# Motice.

SCIENTIFIC Articles and Notes of Interest to the Profession in India are solicited — Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITORS, The Indian Medical Gazette, c/o Messrs Thacker, Spink & Co, Calcutta

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## BOOKS, REPORTS, &c, RECEIVED -

Krappelin's Clinical Psychiatry (New Edition) Bailliere, Tindall &

Jail Administration Report, Assam

Jail Administration Report, Assam
Vaccination, Eastern Beng il
Hospitals Report, Madras Prosidency
University College Research Reports, Vol II
Armstrong's Infectious Diseases in Schools John Wright & Sons, Ld
Aaron's Gynacology Aids 2s 6d Baillière, Tindall & Cox
Scientific Memoirs No 54 Cragg
Scientific Memoirs No 55 Cragg
Scientific Memoirs No 55 Christophers
The Vaccine Treatment (New Edition) Baillière, Tindall & Cox
Housden's Water-Supply and Drainage Longmans, Green & Co
Major D McCay's Protoid Element in Nutrition (International Medical
Monographs) Arnold
Dr R G Ray's Medical Jurisprudence & Polsoning Price Rs 4 (The
Have Pharmacy, Calcutta
Dalton's Veneral & Generative Diseases H Lempton Price 4s
Crookshank's Flatulence and Shock II K Lewis 2\*

# LETTERS, COMMUNICATIONS, &c , RECEIVED FROM —

Colonel P Hehir, I u.s., Burma Capt L B Scott, I M.s., Sylhet, DI Hossack, Calcutta, I t-Col D G Crawford, London Lt Col B Scton, I M.s., Simila, Capt Murison I M.s., Bombay Major E W Greig, I M.s., Calcutta, Dr Palipuka Puri, Dr Sindon, Mysore, Capt Rutherfoord, I u.s., Bilaspur Capt Watts, I M.s., Mily Asst-Surgn Keelan, Lucknow Capt Hornett, I M.s., Gauhati Major R Battyo, I u.s., Major Ross, I M.s., Ranchi Major O Gorman I alor, I M.S. Rangoon, Major Clemesha, I M.s., Calcutta Capt Strother Smith, I M.s., Allahabad, Capt Watts, I M.s., Major R Battye, I M.S. Major Birdwood, I M.S., Lucknow, Capt Matson, I M.S., Shan States, Lt-Col II Smith, I M.s., Amritsar

# Griginal Articles

# THE VALUE OF AMORPHOUS CINCHONA ALKALOID IN MALARIA

BY E E WATERS, MD, MRCP (London), MAJOR, IMS,

Civil Surgeon, Hooghly

During the malaria season of 1911 an investigation was commenced in the Medical College, Calcutta, as to the relative value of the Hydrocloride and Sulphate of Quinine in the treatment of malaria

Some eighty cases were under observation and the conclusion arrived at was, that-taking the average of these cases—forty-five grains of either salt would in three days reduce the temperature to normal in any case of malarial fever, and that the Sulphate of Quinine was more effectual for this purpose than the Hydrochloride

A few cases were treated with Cinchona Febrifuge, and as far as they went, it appeared that this preparation was more effectual in malana than either the Hydrochloride or Sulphate of Quinine

This point seemed to deserve further investigation, and with the onset of the Malaria season of 1912 the matter was taken up again

What is Cinchona Febrifuge? I cannot do better than quote from a letter of Sir D Prain, issued by the Inspector-General of Jails, Bengal, m 1902

"Cinchona Febrifuge differs from Quinine in two respects (1) it is not a simple substance but a mixture of all the substances contained in Cinchona bark, (2) it is not a crystalline but an amorphous product

"The Febrifuge is a mixture of Quinine, Cinchonidine, Cinchonine, and Quinidine, which are present in varying

proportions in Cinchona bark

The most important difference between the Febrifuge and either of the simple salts of Quinine or Cinchonidine is not that of chemical composition but of physical character Besides the four alkaloids already enumerat ed, which are capable of being separated, every analysis of Cinchona bark shows a certain proportion of a fifth substance, which is termed Amorphous Alkaloid There is reason to believe that this Amorphous Alkaloid is not a specific aubstance

All the Alkaloids of Cinchona are ordinally presented to us as crystallizable salts, i.e., Sulphate or Hydrochloride of Quinne, Cinchonidine, etc., but after the separation of other non crystallizable these crystallizable salts aubstances remain, and it is these that are together

known as Amorphous Alkaloid

"It has been found that this amorphous substance, as an antiperiodic, is much more effective than even pure crustallicable Quinine, the reason being, apparently, that in this amorphous condition the alkaloid is much more readily assimilated by the system"

My attention was thus directed to the Amorphous Alkaloid inther than the Febrifuge, and, by the courtesy of Major Gage and Mr G E Shaw the Government Quinologist I was supplied with

an ample stock of the drug and the following additional information -

Mr Shaw states-

"In the Cinchona bark there are quite a number of Alkaloids besides Quinine, which is, of course, the most valuable and which preponderates in all the Commercial Many of these other alkaloids are crystalline and form crystalline salts by means of which they can be separated, but after this separation, a mixture still remains which is incapable of either crystallizing or forming any crystalline compound

Our knowledge of Colloids has, so far, not advanced far enough to enable us to separate such a mixture into its constituents, though it is possible to make certain that there must be several there together. It is this mixture which has the name of Amorphous Alkaloid or Quinidine since Setherner discovered it in 1830 "The amount in the bark varies greatly, from practi-

"We prepare it in the factory from the Quinine mother liquors by making successively insoluble salts of the remaining Quinine, the Cinchonidine and the Quinidine with their allied hydro bases, and then separating the Amorphous Alkaloid from the residue by its comparative insolubility in Solvents. Its nice by its comparative insolubility in Solvents Its price has been fixed at Rs 4 per pound"

So much for the composition and origin of the Amorphous Alkaloid I will now discuss its action in malaria

In the malana season of 1912, a considerable number of cases of Malarial fever were admitted to the Imambaiah Hospital, Hooghly, and, of these, 86 were treated with the Amorphous Alkaloid or with the Cinchona Febrifuge

Twenty-seven cases were treated with two grams of Alkaloid thrice daily, 35 with four grains thrice daily, and 24 with five giains of Cinchona Febrifuge thrice daily (Vide Table A)

TABLE A Varieties of Malarial Fever treated with Amorphous Alkalord and Crnchona Februfuge

	===	==			
	вт	MT	Quartan	Total	
Cinchona Alkaloid tds— 2 grains dose Cinchona Alkaloid	11	13	3	27	One double infection  B T Gamete form  M T Crescent  form  One double infection
t d s — 4 grains dose Cinchona Febrifuge t d s —	20	12	3	35	B T Gamete form M T Crescent
5 grains dose	9	14	1	24	One double infection M T and One case spoin M T lating Ciescent quarters & M T Ring
•			į	ł	form and many
Total treated	40	39	7	86	leuco cytes

In all cases the alkaloid was given in tablet form, as received from the Juvenile Jail, Alipore, the Febrifuge was given in fieshly made pills The doses were given with a drink of water, and in no special relation to meals—just as they

happened to be due in the ordinary hospital routine

No unpleasant effects of any moment were noticed from the Febrifuge—no nausea or ringing in the ears. A certain number of the patients taking the alkaloid—some eight or tencomplained of gastro-intestinal disturbance, such as dranhæa, "heat in the stomach," and so on, but this was far from common

The patients selected for treatment were all suffering from malaria, that is to say, the particular parasite was detected and identified before treatment was commenced

Further, in estimating the value of the drugs, it must be remembered that Hooghly is a particularly malarious district, where a little fever is lightly thought of, and that all the patients treated were sufficiently ill to give up their usual work and come into hospital for treatment

It is difficult in a mofussil hospital, with a limited staff, to determine when parasites are absent from the peripheral blood. Patients come to hospital suffering from fever and are anxious to leave when the fever has been stopped. The most practical method therefore of appraising the drug is to record how many grains are required to stop the fever which is the symptom from which the patient seeks relief.

The first series of 27 cases were treated with two grains of Amorphous Alkaloid thrice daily, with the following results (Table B-I) Eleven benign tertian cases required an average of nine grains of alkaloid to stop fever

Thirteen malignant tertian cases required ten and half grains of alkaloid to stop fever

Three quartan cases required twenty-two grains to stop fever

# TABLE B

Average doses of Amorphous Alkaloid and Cinchona Febrifuge required to stop fever in Malaria

 	 <del></del>	=======================================
	Average quantity of Amorpi ous Alkaloid to stop for et (por head)	Total average quantity of Amorphous Alkaloid given to each pationt

I -Amorphous Alkaloid, dose ii grs t d s

II -Amorphous Alkaloid, dose iv grs t d s

III -Cinchona Febrifuge dose v grs t d s

Fuller details of these patients, with illustrative charts, of the severer cases are appended—

#### TABLE C

Sew Dut Tewari (Chart I) had suffered from fever for 4 or 5 days before admission to hospital Parasites (B I) were present in his blood Eighteen grains of Amorphous Alkaloid brought the temperature to normal

Nister, fe nale (Chart II), had fever for 8 days before admission to hospital Parasites B T gametes were in the blood Temperature rose to 105° Six grains of Amorphous Alkaloid stopped the fever No relapse whilst in hospital

G H Blake, European (Chait III), admitted with history of 5 days fever Had comiting and gastic catarrh Liver much enlarged, tongue dry Veryill Had tramped about the country in search of work M I parasite discovered on 4th day after admission Six grains of Amorphous Alkaloid stopped the fever No relapse whilst in hospital

Topi Ram (Chart IV) had repeated attacks of fever for 21 days, and continuous fever for 11 days before admission Spleen not enlarged Low muttering delirium Diarrhea

Gobindo Doyal (Chait V) Repeated attacks of fever before admission Spleen enlarged Quartan parasite in the blood Twelve grains of Alkaloid reduced the temperature to normal No relapse whilst in hospital This patient suffered from "dy sentery" after the fever and ascribed it to the medicine

Having procured a series of cases with two grains of Amorphous Alkaloid thrice daily, I decided to try the effect of a larger dose, particularly as it appeared in one or two cases that the two-grain dose was not quite enough to control the fever

To the second series of 35 cases, the Amorphous Alkaloid was given in four-grain doses, generally thrice daily, but in a few cases twice daily only. In this series there were 20 benigh tertian, 12 malignant tertian, and 3 quartan

The results were as follows —

20 benign tertian cases required 13½ grains to bring the temperature to normal

12 malignant tertian cases required 16½ grains 3 quartan cases required 24 grains

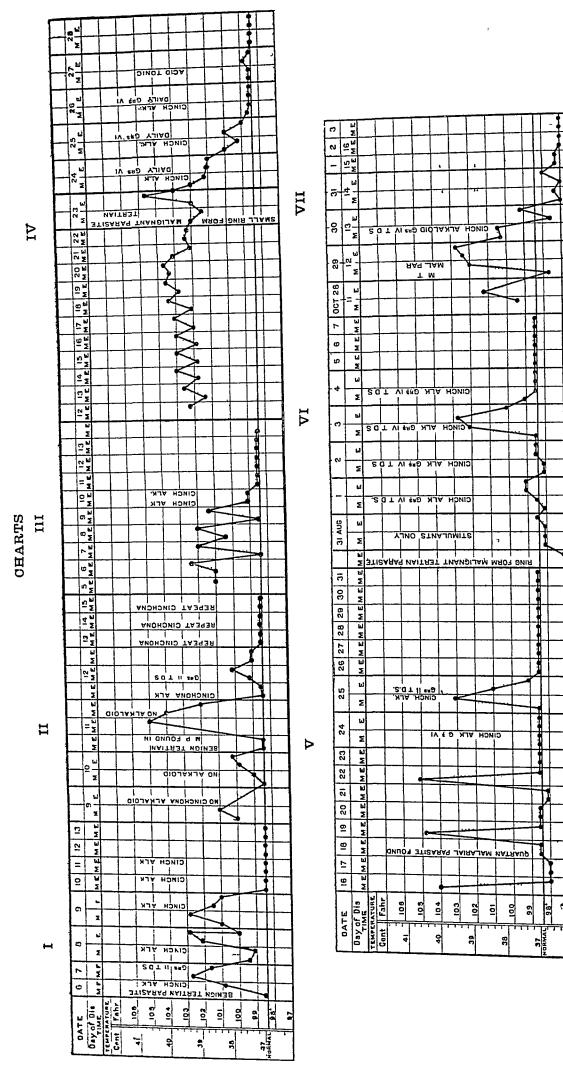
It thus appears at first sight that the larger doses were less effective than the small ones, but this, I think, is not really the case. The difference is not large and is probably accounted for by the drug being given in larger quantities in each day and so over-running the fever to some extent. The benight tertians required less alkaloid than the malignant, whilst the quartans, true to their reputation, required considerably more than either

The following cases, with Charts are examples -

Ram Golash Roy had been suffering from continuous fever for 3 or 4 days. On admission collapsed with severe purging and vomiting. Pulse megular and intermittent, much prostration. An excellent example of the permicious or Algid type of malaria. This is the most interesting case of the series. The patient was

THE VALUE OF AMORPHOUS CINCHONA ALKALOID IN MALARIA

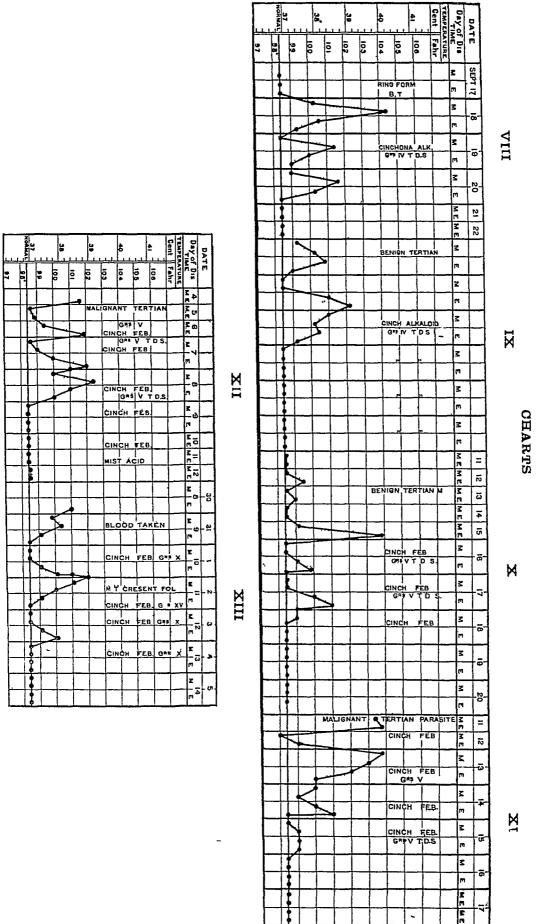
BY E E WATERS, ND, MRCP (London), MAIOR, INS, Cavil Surgeon, Hooghly



# THE VALUE OF AMORPHOUS CINCHONA ALKALOID IN MALARIA.

BY E E WATERS, MD, MRCP (London), MAJOR, IMS.,

Creat Surgeon, Hooghly



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dangerously ill on admission and apparently suffering from cholera, but the M T rings were found in the blood. On the day of admission the temperature was subnormal and the condition desperate, on the second day the temperature was still subnormal and the man veryill, on the third day Amorphous Alkaloid, grains xin were given. There was an attack of fever in the evening, and though the man was veryill he was not quite so ill as on the first day. The temperature rose only to 99°. The next day there was no attack, the man was fairly well and the alkaloid was continued. On the 5th, there was a sharp attack of fever in the afternoon, the temperature reaching 103°, but the patient said he felt much better, and his general appearance confirmed this. There was no prostration nor any of the typical permicious signs, and after this the patient had no further attacks. It seems, therefore, that the improvement in the man's condition was definitely indicated by the rise of his temperature—a sign which is new to me and which I have not seen in the books.

# Vide Chart VI

Kushem—(23) The patient had been suffering from fever for 10 days before admission. The spleen was enlarged. Malignant tertian parasites found. Cinchona Alkaloid, grains iv t d s were given and rapidly reduced the temperature to normal.

#### Vide Chart VIJ

(10) Sulhus Gwala—Admitted on 17-9'12 Had suffered from repeated attacks of fever for 3 weeks. His spleen was enlarged. Young benigh tertian parasites in the blood. Alkaloid, grains iv, thrice daily—24 grains in all, aborted the next attack. Patient discharged cured on 22nd.

# Vide Chart VIII

(9) Kalı Kristo Banerji—Admitted on 2 10-'12. Had suffered from repeated attacks of fever for four months, each attack lasting for eight or nine days. Spleen not enlarged, jaundice. Young benigh tertian parasites in the blood. Alkaloid, grains iv, thrice daily. Twelve grains stopped the fever. No relapse whilst in hospital.

### Vide Chart IX.

The above are the typical cases treated with the four-grain doses of the Cinchona Alkaloid

# CINCHONA FLBRITUGE

Having obtained a series of cases treated with the Amorphous Alkaloid I reverted to the use of Cinchona Febrifuge

It will be seen that this drug must be used in considerably larger dose than the Amorphous Alkaloid in order to produce the same effects. This is to be expected from the relative composition of the two substances. I am disappointed that the results of the 1912 cases are not as good is those of 1911 but one or two very resistant cases considerably raised the average amount of febrifuge required.

The following cases are representative ones

Harr Das had suffered from fever for one month before admission, and continuously for 10 days. Spleen enlarged. Benigh tertian parasite. Forty grains of Tehrifuge stopped the fever.

# Vid Chart X

fsutosh Sil — History of S days fever before admistion with vomiting First seen on minth day Malig nant tertian parasite Spleen enlarged Sixty grains of Febrifuge stopped the fever

# Vide Chart XI

Gonopati Benia had fever continuously for 3 days before admission Spleen not palpable Malignant tertian parasite Thirty grains of Febrifuge stopped the fever

# Vide Chart XII

Jagar Dharka—Table E (14) First seen on 8th day Complained of fever for one week before admission (rescents in the blood Spleen enlarged Some bronchitis Forty grains of Febrifuge stopped the fever

# Vide Chart XIII

The cases detailed above—of which the Charts are abbreviated for reasons of space—may fairly be taken to prove that the Amorphous Alkaloid (and the Cinchona Febrifuge) are efficient remedies for malaria. I have demonstrated that excluding quartan cases, an average of sixteen grains of this Alkaloid is sufficient—taking every case in a series of 62—to stop the fever in malaria, and to stop it very promptly after it has been persisting for some days

In other words, the Amorphous Alkalord is from three to five times as effectual as quinine sulphate, and may therefore be given in proportronately smaller doses

It has no unpleasant effects, can be given in small tablets, is iapidly effectual, and is inexpensive

This last point is perhaps one of the most important certainly from the administrative point It is rumoured that a powerful combine controls most of the quinine supplies of the world and that prices are rising Hydrochloride is about Rs 16 per pound, the Sulphate about Rs 8/8 to Rs 10 per pound, and it is the Hydrochloride that has been asked for in some provinces for distribution in "treat-Now, a pound of Hydrochloride, at sixteen supees, will make 1,400 five-grain tablets, whilst a pound of Amorphous Alkaloid, at four supees, will give 3,500 two-grain tablets of equal In other words, four supees worth of Amorphous Alkaloid, now almost a waste product, will do the work of forty tupees worth of Quinine Hydrochloride

For this reason alone, the Alkaloid is worthy of a more extended trial, and I commend its use to Civil Surgeons and others in whose annual budgets expenditure for quinine is an unpleasantly heavy item

My thanks are due to Assistant-Surgeon Kalı Mohan Sen and the staff of the Imambarah Hospital for their assistance in collecting the material for this paper

[For reasons of space we have omitted a long table giving details in tabular form of the whole series of cases. That Major Waters has proved his case as to the value of the Amorphous Alkaloid is sufficiently clear from the cases quoted above —ED, I M G]

### ANAPHYLAXIS \*

Bi W D SUTHERLAND, MD, LT COL, IMS

ANAPHYLAXIS may be defined in Filedberger's words, as the increased power of the organism to react to foreign albumin introduced into it parenterally, i.e., otherwise than by way of the alimentary tract

We know that if we introduce a large dose of a foreign albumin parenterally into a normal healthy animal, its body temperature will rapidly fall, and the animal may die. And we know that a small dose of foreign albumin will cause the animal to suffer from fever, whose type will vary with the dosage, the intervals between the injections and the mode of giving these

But an animal may be rendered much more sensitive to the foreign albumin by giving it a very small dose and then delaying the reinjection for a period which varies according to the effect which it is desired to produce

As the guinea-pig is by far the most sensitive animal—400 times more sensitive than the labbit where anaphylaxis is concerned—we may conveniently study the phenomena in its case

If we give to a series of guinea-pigs 1/100c c of horse-serum intraperitoneally on 1st January, and then on 12th January take some of the series and give them 2 c c of hoise-serum intraperitoneally, we shall have developed in these animals the syndrome of anaphylactic shock For a few minutes to all appearance the animals will be unaffected, then they will tend to huddle up to then fellows, only to seek a corner for themselves later, being visibly excited they will begin to sciatch themselves vigorously, first with the hind and then with the fore-feet Then we shall observe that they have lost power in their limbs—the hind leg that is lifted to By this time the animals sciatch sinks down will be visibly very ill, crouching pione and Later they will tend to fall breathing rapidly over on one side—at first only to regain the prone position with some difficulty, later to remain lying on then sides gasping for breath Convulsions will now be observed, and in some cases these will become more marked and frequent until death closes the scene, others will gradually recover and be as well as ever after four hours

If we take the guinea-pigs' temperature, while they show these symptoms we shall find that it has rapidly fallen—the fall may reach 5°C (9°F) Their blood will show leucopenia and diminished coagulability. The blood pressure will not, however, be much affected, in the dog a fall in the blood pressure is a very marked sign of anaphylaetic shock.

At the autopsy on those animals that have died we shall find over-distension of the lungs, which on section will yield a copious quantity of frothy fluid, and on microscopical examination we shall find full distension of the alveoli, with rupture of some, contraction of the bronchial muscularis, and consequent puckering of the mucosa

As we see, the syndrome is made up of itching, paresis, asthma and marked fall in body-temperature. The itching is due to urticaria which is in the human subject so often found after injecting a curative anti-serum, the striking connection of the urticaria with the asthma reminds one of that seen in cases of spasmodic asthma in man. So close is this connection that at least one distinguished clinician assumed that the asthmatic attack, of which no signs can be seen post mortem, is due to urticaria of the bronchial mucosa.

The fall in temperature is so marked and so constant that H Pfeiffer, who first called attention to it, has devised a formula by which the amount of shock in each individual case may be estimated for purposes of comparison. His formula is —

Z = Time between injection and time of return of body-temperature to normal (in minutes)

from this formula Mita (1) has evolved the following means of estimating fatal shock, after measuring countless cases—

$$S \dagger = 30,000 + (20,000 - \underbrace{\tan \times Z}_{2} \dagger)$$

St = Shock which causes death

ta = Fall in temperature, in tenths of a degree C

Z + = Time between injection and death, measured in minutes

These formulæ are devised for guinea-pigs of like weight, and are of value when the initial dose and the period of sensitisation are constant

If we take some blood from one of our series of sensitised guinea-pigs on 9th January and inject it into a previously unfreated guinea-pig, this too, if it receives an intraperitoneal dose of 2 c c of horse-serum on the 12th, will suffer from shock The injection of sensitised blood has passively sensitised it

It would serve no good end to recapitulate all the theories that have been advanced to account for these phenomena. It will suffice to say that in the opinion of Vaughan (2) and also Manwaring (3) the organism attempts to digest the parenterally introduced foreign albumin, and to accomplish this the liver secretes a coenzyme, which, when it comes in contact with the albumin of the second injection, sets free a toxophore group from the protein molecule, in other words,

<sup>\*</sup> A paper read at the Asiatic Soc of Bengal (Medical Section), 15th January 1913

splits up this molecule so that it sets free a poisonous substance Friedberger (4) and his school hold that the first injection stimulates the organism to form antibodies and that these anchor the complement of the animal's serum to the protein molecules of the second injection thus causing these to be split up to set free the poisonous substance, which Friedberger calls anaphylotoxin

Vaughan believes that the poison is identical with that obtained by digesting egg-white with alcohol containing 2 per cent of sodium hydroxide Biedl and Kraus (5) believed that v Witte's peptone causes symptoms identical with those of anaphylactic shock, but this view is not shared by very many observers. Manwaring, whose beautiful experiments seem conclusively to prove that it is the liver which is chiefly concerned, admits that peptone poisoning is like, but denies that it is identical with, the poisoning in anaphylaxis. He seems inclined to attribute the symptoms to exhaustion of the oxygen of the blood consequent on the reaction of coenzyme+protein

In support of Friedberger's views we have the following facts —

(a) Complement is absolutely necessary for shock to take place on the giving of the second injection. If the sensitised guinea-pig have an intraperitoneal injection of sheep's erythrocytes and inactivated hamolytic serum for these, derived from a rabbit, then it will have its complement exhausted by being taken up to reactivate the hamolytic serum, and will not suffer if it receives its second injection of horse-serum shortly afterwards (Læffler) (6)

(b) Anaphylotoxin can be prepared in vitro by mixing the blood-serum of the sensitised animal with the antigen. If the serum be heated to destroy its complement, no anaphylotoxin is produced from the antigen, unless the serum be reactivated by the addition of fresh complement.

(c) If a guinea-pig be given anti-ovine rabbit serum and after 24 hours sheep's serum—both mactivated—it will show anaphylaxis

(d) The reaction is specific in that anaphylotoxin cannot be produced by the action of the serum of an animal sensitised to hoise serum, on sheep-serum nor will this animal react to sheep-serum but only to horse-serum

The anaphylotoxin is the same however it be produced—whether by the interaction of complement + foreign serum and its antiserum or complement + bacteria and their antiserum

In the opinion of Wæle (7) it is the complex complement + amino-acid which causes the anaphylactic shock

In I riedberger opinion we have the protein molecule split up after it has been linked to the complement by the specific amboceptor the protein molecule is split up just as the erythrocyte

is dissolved when linked by its specific amboceptor to the complement. The analogy is very close indeed for just as the elements of the complement—mid-piece and end-piece—must both be present for hæmolysis to take place (8), so must they both be present for the poison to be formed (9)

If instead of giving our sensitised guinea-pig 2 c c of horse-serum at the second injection we give it only a small dose, it will not suffer from shock, and then if we give it a very large dose some hours later, it will show no shock symptoms at all. It has by the small second injection been rendered antianaphylactic, because most of the antibodies have been taken up by the antigen of the second injection and not enough remain unsatisfied to cause any shock-reaction when the (3rd) large dose is given

Another peculiarity about our sensitised animal is that it is very much more liable to suffer from fever in consequence of a small second injection than is a normal guinea-pig. After 24 hours of receiving the first injection its liability to suffer from fever is 10 times, after 7 days 1,000 times, and after 19 days 100,000 times as great as that of the normal animal, as Friedberger has shown

It is also much more hable to suffer from fall in the body temperature than is the normal animal a normal guinea-pig's temperature will fall if it receives I c c of sheep-serum intraperitoneally, a guinea-pig sensitised 55 days previously by the intraperitoneal injection of  $\frac{1}{100,000}$  c c sheep-serum showed a fall of temperature after the intraperitoneal injection of  $\frac{1}{100,000}$  c c Similarly, a normal guinea-pig will suffer from fever if it receives  $\frac{1}{10}$  c c sheep-serum intraperitoneally, a guinea-pig sensitised 55 days previously with  $\frac{1}{100}$  c c sheep-serum showed a rise of temperature after receiving  $\frac{1}{2,000,000}$  c c of sheep-serum intraperitoneally

The parenteral introduction of the foreign protein causes a fall, no change, or a rise of temperature according as the dose is large, moderate, or small. The normal organism has the power of digesting parenterally introduced foreign protein by means of its complement which is always present and the product of the digestion is a thermogenic substance, in consequence of the presence of antibodies for the foreign protein the sensitised organism has a vastly increased power of elaborating this thermogenic substance from the foreign protein of the second injection

If the first dose be a fairly large one, we shall, as we have seen, have a fall in the body temperature. Next day there will be some antibodies present, and thus a small dose will cause a rise of temperature.

If the sensitised animal be given a small dose, it will have fever, and if next day it be given a larger dose, it will still have fever the anti-

bodies remaining unsatisfied are sufficient to cause the thermogenic substance to be formed, but not sufficient to cause a cryogenic effect with shock

Vaughan explains these facts by assuming that while the fall of temperature is due to the setting free of a toyophore group of the protein molecule, the rise is caused by (1) elaboration of the molecule short of this, and (2) the following sources of heat-production increased cell activity in oider to produce the enzyme, cleavage of the protein-molecules, and reaction between the products of their digestion and the animal's Relatively large doses of anaphylotoxin cause a fall, moderate doses cause no change, while very small doses cause a rise of tempera-

It seems that we must accept the conclusions arrived at by Vaughan and Friedberger—working in different ways, and with different ends in view—that in infectious diseases the fever is caused by the elaboration of the very doses of foreign protein introduced from time to time parenterally into the organism as a result of the metabolism of the micro-organisms concerned, all micro-organisms causing fever in the same way

The syndiomes of the various diseases depend on the site of implantation of the micro-organism concerned, and the biological conditions under which it exists at that site Two very different microbes, whose site is similar, will produce the same syndrome, eg, the pneumococcus and b Friedlander, one and the same microbe produce very different syndromes at various sites—eg b tuberculosis The period of incubation may well be taken to be the period of sensitisation of the patient This period varies as the various micro-organisms have different conditions of growth and metabolism

The doses of foreign protein introduced from time to time must be necessarily small per cent of the mass of bacteria is composed of water, and only half the remainder is albuminous, so that it takes many millions of bacteria to furnish even as much albumin as is contained in  $\frac{1}{10}$  c c of serum It is the ever-recurring introduction of these minute doses, and their digestion by the patient's complement which keeps up the fever Obviously the old observers were not quite right in concluding that it is by fever that the body cleanses itself as by fire "anaphylaxis iefracta dosi," in the words of Friedberger

The conclusions which may be drawn from the above brief resume of the facts that have come to light in recent years are these -

(a) Since anaphylaxis is specific, we may in seeking for the origin of a blood-stain use an extract of the stain to sensitise a series of guinea-To some of these after 10 days we may give large doses of various sera, in order to deter-

mine by fall of temperature and shock which is the blood that caused the stain may give to the others small doses of the sera in order to determine which causes a rise of temperature

- (b) Our duty in cases of fever is to lessen the production of foreign protein and to aid the organ-18m to get 11d of the products of 1ts digestionto limit the number of micro-organisms and to promote dimesis As it is the protein parenterally introduced that is the fons et or igo mali, we need not adopt the "empty bowel" method of treatment of typhoid We can do no haim by giving our patient a great deal more nourishment than can be conveyed by bucketfuls of whey and beef tea
- (c) Although anaphylactic shock is very rare in the human subject, and death from it fortunately hardly ever occurs, yet it is our duty so far as we can to prevent the onset of unpleasant symptoms—unticana, malaise, præcordial anxiety and dyspnæa—when a second injection of a curative antiserum is made in the case of a patient who at some anterior time has had some antiseium injected into him for all antiseia at present on the market are derived from the horse, and the first treatment has caused our patient to We may, if time be sensitised to horse-serum permit, starve our patient for a couple of days, and give him a small dose of Baium chloride to combat fall in blood-pressure, but without any such treatment we may establish Antianaphylaxis by giving \frac{1}{2} c c of the antiserum intravenously or 1 cc subcutaneously to hum-if an adult, and then after an interval of 3 or 6 hours, according to the method of injection adopted, we can cheerfully give him the rest of the full dose Should he require another dose subcutaneously within 24 hours, he may have it in full

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# THE MANAGEMENT OF THE PUERPE-RIUM AND ITS RELATION TO

PUERPERAL FRVER \* BY G T BIRDWOOD, MD,

MAJOR, IMS,

Civil Sur geon, Lucknow

WHEN your Secretary asked me to read a paper, I thought I would select some subject in which I was most interested, namely, "the management of normal

<sup>\*</sup> A paper read before the Clinical Society of Lucknow on Nov 16th 1912

labour and its relation to puerperal sepsis," but the difficulty at once occurred to me that it was a subject on which most of the general practitioners of Lucknow could have little experience, as the midwifery practice of the town is chiefly in the hands of midwives, and so the subject might not be very interesting, but this doubt was removed by my being called out in consul tation twice in one week by two practitioners over cases of puerperal fever in their charge (though they had not themselves attended the confinements) And thus it appeared to me that many of you in this large city, although you will not actually attend confinements, will probably be often consulted about fever which trues after confinement, about homorthages before and after confinement, and about cases of delayed labour Another point is that all of you are probably fathers of families on whom the responsibilities of parentage rests, and it will at one time or another be your earnest thought that your daughters should have the best and safest treatment when their turn for con inement comes, so some of the points in this paper may prove of interest I wish to bring to your notice one or two simple rules by following which most practitioners and midwives would save much after trouble and suffer ing, and on the observance of which the safety of the pregnant woman depends Such rules as disinfecting the vulva before an examination, diagnosis of fretal position by abdominal palpation and 1 ot per vagina But before I emphasize these rules, I would like to bring to your notice one or two points in the bacteriology of the micro organisms found near the genital canal and in puerperal fever Bacteriological research has enabled us to make great advances in technique and treatment both in medicine and surgery, so too in midwifery, bacteriological reaserch has cast a clearer light on various processes and caused us to reform and simplify our methods

First—From the healthy vulva during pregnancy there can be cultivated streptococci, staphylococci and coliform bacilly like bacilliss coli

Secondly—From the lower part of the vagina the same organisms have been cultivated but also diplococci and ancerobic organisms. These two facts alone emphasize the importance of not making a vaginal examination unless absolutely necessary, and if such an examination is necessary, then the importance of disinfecting the vulva and swabbing out the vagina without septics before any examination. If these precautions are not carried out there is a very good chance of carrying infecting micro organisms by your clean finger up to the cervix. Previous to the commencement of labour, there is a nuncous plug in the cervix, but when I about has commenced and the or uteri has opened, the mucous plug is broken down and the road is open to infection.

Thirdly—The vagina secretion during pregnancy is very acid and this has been found to be due to a strong growth of lactic acid bacilli known as Doderlem's bacillus also an erobic micro organisms which give time to a foul smell in the discharges may frequently be found in the regima in pregnancy and also at ordinary times when a foul smell is detected in the discharge during pregnancy, it is evidence that the lactic acid bacillus has been overcome by the ancerobic organisms. Two practical points result from this discovery (A) In the absence of any foul discharge during pregnancy, a vaginal douche is undesirable, as it washes away the lactic acid bacillus (B). But in the presence of a foul discharge an antiseptic douche is a necessity to wash

In the presence of a foul discharge some authorities have even advocated the injection of dilute cultures of lactic acid in milk, with a view of overcoming the autropic infection

Fourthly—A certain amount of knowledge has been gained as to the frequency of the organisms causing Pure attention

Pure streptococcus occurs in about 50% Pure taphy lococcus in about 5% Mixed infection in about

70% Coliform bacilli like bacillus coli tend to remain local in the uterine wall or to burrow through and form local peritonitis, and collections of pus and the proportion of occurrence in such cases is comparatively small

An erobic organisms do not get into the system but develope locally in the uterus and vagina in small pieces of retained placenta and blood clot where they give use to toxins which are rapidly absorbed

As regards the pneumococcus Tweedy and Wrench are of the opinion that its frequency as a cause of puerperal infection is greatly underestimated. It has been demonstrated in several cases and would probably be found as a cause more often than it is thought

Thus one of the results which the light of bacteriological research has cast upon puerperal infection is that puerperal infection is no longer, any more than pneumonia, regarded as a single entity as a disease. So that now whenever a presperal woman gets a temperature above 100°, she is considered to have some microbic infection

In order to illustrate the various forms of puerperal infection, I have drawn up charts which show the types of fever and the result of treatment

1 Occasionally as in Chart 1, nervous excitement or visitors or distressing news may send up the fever when there is no microbic infection

2 Sometimes on the third or fourth day as in Chart 2, there may be a rise of temperature, synchronous with the milk appearing in the breasts. This has been called "milk fever," but in reality it is due to some microbic infection in the vagina. Tweedy and Wrench affirm that there is no such thing as "milk fever" and no fever associated with the breasts except mastitis. I can support this view from an experience of sone 70 cases at Mussoone. In those cases where no vaginal examination was made, no instruments used or rubber gloves worn, the temperature does not rise above 99. The onset of the milk does not give rise to fever. This shows that improved technique in the management of normal labour will do away with these cases of mild infection, formerly attributed to "milk fever."

3 A slight rise of fever sometimes is caused by constipation in prespetal women as in Chart 3. Some attribute this to the absorption of toxins from the fæces, but it is more probably due to the recumbent position and absorption from lochia for raising the head of the head on bricks and a purge generally bring the temperature to normal

4 Retained lochia in the vaging from the fifth to seventh day sometimes gives rise to fever as in Chart 4 Some septic absorption takes place from a decomposing clot—a mild supræmia results, and the temperature is brought to the normal by a douche, and raising the head of the bed

5 An ulcer arising from a tear or wound in the permeum or vaginal wall is sometimes a cause of puerperal infection as in Chart 5 Such terms form sloughing ulcers with torm edges. In this condition any permeal stitches must be removed, the secretion died from the surface of the ulcer, and the base swabbed with tincture of rodine.

6 A more common cause of puriperal infection is a piece of retained placenta with an accompanying blood clot as in Chart 6 Retained adherent placenta as a whole is a raje trouble and manual removal very right needed, but retention of a small piece is not uncommon, such small pieces are surrounded by blood clot, putrefaction and robes soon begin to decompose it, tokins are absorbed and sapræmia results Lochia become abundant and smelly. An intra-uterine douche of Tinct. Iodi and mild curetting with the finger or blunt curette is indicated.

7 Lastly, we come to the three forms of acute puerperal infection (a) acute lymphatic sepsis, commonly known as puerperal fever as in Chart 7,

(b) acute infection of the vierus followed by parametritis, cellulitis, pelvic peritonitis and abscess which follows a chronic course and of which I have no chart,

(c) acute venous sepsis leading to plegmasia alba and pyæmia as in Chart 8

Acute lymphatic sepsis is nearly always due to the early invasion of the placental site by streptococcus—symptoms of headache, high temperature, great restlessness, insomnia, suppressed lochia rapidly come on The micro organisms are in some cases (but in by no means all cases) carried by the finger from the vulva into the vaginal canal No 7 is a chart where infection alose from a condyloma on the vulva

No 8 is a chart where infection arose from a piece of retained placenta whose removal was attempted without rubber gloves. On post mortem examination of such cases the uterine wall is smooth and normal, but on microscopic examination, the wall is found densely crowded with streptococci who get access through the uterine wall to the lymph and blood streams

In acute venous sepsis which leads to phlegmasia and pyæmia the organism is generally streptococcus. They get a foothold in blood clots in the venous sinuses, which they dislodge by peptonization before invasion can take place. Sometimes a week or ten days elapse before any trouble comes on, and the doctor and the patient do not anticipate any trouble which comes on them unexpectedly. Such are the chief varieties of puerperal infection and I have briefly sketched the types met with, as a knowledge of them and their causes very materially influences our management of normal confinement.

This bacteriological knowledge has caused us to modify our management of normal cases and the types of puerperal infection must be continually before your mind in the conduct of a normal case. I will now point out one or two ways in which our technique has been altered by this knowledge to the very great beneficially and retreated.

fit of our patients.

- (1) The first and most important modification in our treatment is that in normal confinements, no vaginal examination should be made at all. If you can teach and instruct all nurses, midwives and dhais that they must on no account make a vaginal examination in normal cases, you will save many a case of prolonged fever and suffering. No practitioner should himself in normal cases make a vaginal examination, knowing that the vulva may be covered with strepto cocci, and that the finger however clean may carry the streptococci before the country that the streptococci before the country of the diating os, surely it is wise that the vaginal examination should be made except on necessity. When I was a student we were allowed to make frequent examinations to see how labour was progressing and even now when labour is delayed it is a great temptation to see if advance is really satisfactory, but we must bear in mind that every examination is a risk and they must be as few as possible
- (2) The second point of modified technique is, that the diagnosis of feetal presentation must be made by abdominal palpation, and not per vagina. In nearly all cases this can be done. Occasionally the abdominal walls are too tense. Pelvic palpation by pressing the fingers of both hands deeply into each inguinal fossagives rost valuable information as to whether the head is at the brim. It can be easily felt as a cricket ball Fundal palpation will tell you whether the back is to the right or left.

(3) The third point I wish to bring to your notice is this, that if a vaginal examination has to be made, there must be a thorough washing of the labia majora and minora first with soap and water, and then with an antiseptic lotion, using swabs of antiseptic wool. And finally leaving a swab of wool with lotion on it, in the vulval outlet, till the clean or gloved finger can be inserted. If the vulva is not cleansed, it is possible to carry streptococci or staphylococci from it up into the top of the vagina which will surely lead to trouble

(4) The fourth point I wish to call your attention to is the use of rubbei gloves, and I can strongly recommend their use to all who can afford them. They give a great sense of confidence that nothing

impure from your hands will be carried to the vagina Rubber gloves cost Rs 2 a pair and most private patients can afford this. To a busy practitioner who perhaps has recently opened a septic whitlow or dressed a syphilitic soie, the gloves are a great protection

(5) This leads me to the fifth point in consideration of the technique, mz, this, that our whole attitude towards the conduction of a normal confinement should be the same as that by a major surgical operation same rigid ritual of antiseptics should, if possible, be You are generally taught that you should enforced scrub up your hands and place them in antiseptics for two minutes, but there must be more than this. At the delivery of the child, the Surgeon must have on an apron and his hands must be cleaned and gloved in sterile gloves, there must be a cloth wrung out in antiseptic lotion under the buttocks and vulva, the nurse must wipe the anus from before backwards with swabs of antiseptic wool held in forceps The sutures for the cord, scissors and forceps must be boiled and be ready The whole attitude of the Surgeon must be that as if he was going to open the abdomen, and there must be all possible precautions that nothing contaminated comes near the vulva outlet

Of course, this attitude is not adopted throughout the long moments of waiting, but are adopted when the head arrives on the perineum. This attitude is of course ideal and one almost impossible to teach to a native midwife, but the principles of non-interference and clean clothing and towels may carry even them a long way on the right path.

(6) Another point in which the management of the puerperium has been altered by the knowledge of puerperal septis is the time the patient is kept in bed Formerly we were taught that she should stay in bed for 14 days and on a couch for another

(7) Now it is a common practice to let a woman sit up in 5 days, and out of bed in 10 to 14 days. The sitting position favours the free drainage of the vagina. For this reason some authorities have advocated letting the patient sit up on the 2nd or 3rd day, but my own experience has been that most labours are periods of great pain and often of great exhaustion, and most women need the prolonged rest of at least 5 days in the recumbent position.

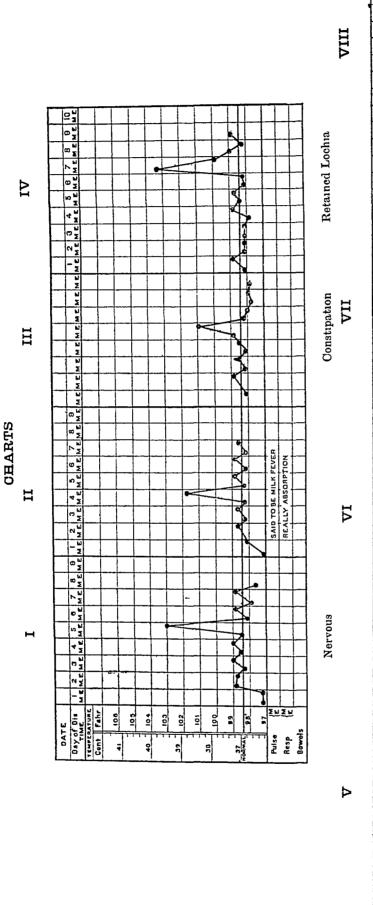
(8) A notice count in the management of normal cases in which a knowledge of puerpetal sersis will help you to a decision is whether antiseptic douching is necessary before and after confinement. In normal cases where no vaginal examination has been made and no instrumental or manual interference there is no necessity for any douche. Should there arise any foul smell or any rise of temperature as in Chart 4, indicating absorption from a clot, then a douche is given at once, otherwise douching in normal cases before and after

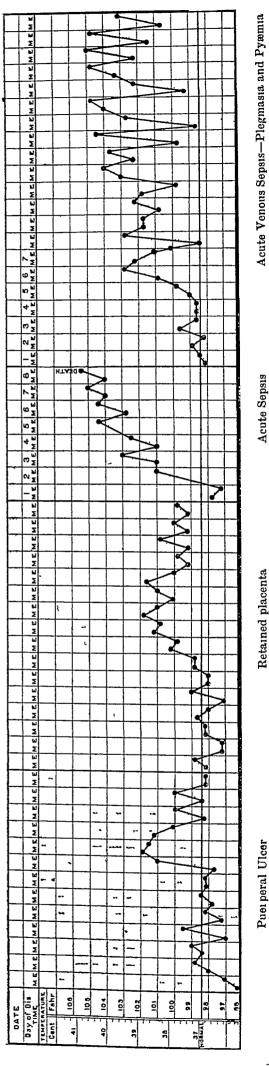
confinement is unnecessary

(9) A simple point with the management of normal labour is the maintenance of a temperature chart chart is a most necessary guide, and yet its mainte nance is constantly omitted by practitioners. In the two cases of infection to which I was recently called in consultation no temperature charts had been kept, though the medical attendants thought the patients had had fever sometimes more, sometimes less since the confinement A glance at these typical charts No I and No 8 met with in puerperal infection will show you at once how important a guide a chart is. It is additionally important in India where there is always the possibility of a malarial infection in addition to a puerperal infection. Charts indicate the nature of the infection and suggest a possible line of treatment Every nurse and assistant, and now nearly every hakeem, knows the use of the thermometer, and so there is no excuse for not keeping an efficient record I wish to call your attention to the Rotunda tempera ture chart for confinement cases which records full de tails of the confinement and is useful for future reference I think all of you who have anything to do with

T BIRDWOOD, ND, MAJOR, INS., Br G

Civil Surgeon, Lucknow





Acute Sepsis

Retained placenta

Puerperal Ulcer

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confinements, should insist on a temperature chart being

These are a few simple rules of technique that I put before you—don't make vaginal examination unnecessarily nor let your assistants make them—use abdominal palpation for diagnosis, be strictly surgically clean—encourage early sitting up—keep a temperature chart—all simple enough rules but all frequently overlooked

Finally, when a normal case goes wrong, how far is the practitioner, nurse or attendant to blame Every practitioner should ask himself "wherein did I make a mistake" Tweedy and Wrench say "the causes of puerperal infection are bacteria which gain entrance to the parturient canal . The commonest way they gain entrance is from the non sterile finger or instrument, or they are carried by the sterile finger or instrument from the labra minora that have not been efficiently cleaned In other words, puerperal infection (certainly all infection of a serious nature) is to be attributed to failure on the part of the medical attendant or nurse to preserve strict cleanliness" This may possibly be the case, but I think myself practitioners are frequently not to blame. There are many possibilities of infection in spite of all precautions. The very strictness of our antiseptic precautions shows the easy possibilities Occasionally there is a possibility of auto infection, on the one hand there is the raw placenta, close to it the vulva contaminated with streptococci difficult to clean Again a piece of placenta may be retained. Again the infecting organism is the streptococcus, while the commonest in man's hand is the staphylococcus. Again ulcers are formed by bruises and tears in a rapid Again there are often adverse conditions of bidly ventilated rooms, bad light, dirty clothes, and patients who will not let themselves be cleaned So that when a case goes wrong I am very slow to attribute blame to any practitioner But every attendant in such cases should say to himself - Did I make too frequent examinations? Did I cleanse the vulva efficiently? Did I diagnose carefully and accurately by abdominal palpation? Did I recently go near a septic surgical case, and then not use gloves? Did I use clean utensils and clothes and towels (which are easily got) before and after labour? If it is time that all infections of a serious nature are due to failure on the part of the attendant to presenve strict cleanliness, then our responsibility is very great of these simple rules may be of help to you I hope some

I know that a great many of you will never be called upon to attend a confinement, and so will have little opportunity of carrying into effect these suggestions, but is doctors, there will be few of you whose advice will not be asked at one time or another on the subject of pregnant woman of the families which you attend, and you will be able to emphasize and enforce these principles in all those who conduct cases for you as midwives or dhais, and thus be able to teach these

principles to those who ask your advice

# A REPORT OF TWO CASES TREATED SUCCESSFULLY BY PSYCHO THERAPY

BY OWEN BERKELEY HILL,

CAPT IMS

Mr X European, consulted me on account of a gradually increasing "weakness" of the right hand which greatly interfered with his power of writing, especially writing connected with his business

The patient was an unmarried man of robust appearance and, intellectually, an accomplished scholar,

He has resided in India for several years

The patient's family history was good There was no history of nervous or psychical disease

At the time the patient visited me he was to all outward appearance perfectly healthy. He slept well and his appetite was excellent

He complained of being woiled and depressed about himself chiefly on account of his inability to write and the serious consequences this might give lise to if there were no means of bringing about an improvement in his condition

The patient had been seen by several physicians and surgeons, one of whom had diagnosed writer's cramp" and instructed the patient to undergo a course of massage and high-frequency currents

The patient had carried out these instructions, but the "paralysis" of his hand had increased rather than diminished

An examination of the patient's physical condition revealed absolutely nothing amiss

The night hand was to all appearances absolutely normal

Any manipulation could be performed with the hand save writing as the patient demonstrated to me

The patient wrote shakily and only with hesitation and effort

He pointed out that he could write better away from his office (as for instance in my room), than he could write in his office, and that he could write ordinary letters better than he could write business letters. For instance, when writing in the presence of his chief, as he had sometimes to do, his power to write would suddenly leave him entirely, so that he had to stop and "pray for its return"

On these occasions the patient experienced great mental suffering

Every point in the patient's history indicated that the cause of his trouble was purely psychical, so for this leason I recommended him to submit to a psycho-analysis (I)

I briefly explained the principles of Psychoanalysis to the patient and he consented to submit to it

"Free-association" (I) was exceedingly productive for the patient displayed singularly little resistance from the outset

In five interviews, each interview lasting from one to two hours, the whole chain of events that had given use to the patient's trouble was distinctly revealed

The crucial point in the patient's psychical history were that he was intensely homo-sexual as well as being given to masturbation involving the practice of a somewhat startling ritual

During the elucidation of the homo-sexual history the patient on one occasion quite broke down and speaking under great emotion told me that he longed to be like other men for he intensely desired to marry and have children.

Only once in his life, at the age of 17, had he attempted sexual intercourse with a woman and it had been a complete failure

Once, and once only, he had on another occasion experienced an erection when in the society of a lady of his acquaintance

These two episodes apparently represent the sole hetero-sexual experiences of the patient's past life

On the other hand, his life was full of homo-sexual experiences

At the age of 7 he could recollect being assaulted by his father's footman

The episode was associated in the patient's mind with an effect of pleasure rather than of disgust

During his time at school he had practised various forms of sexual gratification with his school friends, and the habit grew upon him to the exclusion of all development of normal feeling, so that the same desires and proclivities followed him to the University

About this time he began to experience intense sexual excitement whenever he happened to see soldiers at play, especially playing violent games, like football or hockey, which caused them to sweat profusely

After watching soldiers occupied in such pastimes, he would retire to his own room and masturbate in a singular fashion with much ritualistic formality

At the conclusion of these performances the patient was invariably filled with remoise and repugnance at his actions, but no matter how much he strove to overcome this habit the spectacle of sweating soldiers, especially if they were fat, would drive him instantly to extremities of voluptuous pleasure

It was remarkable to discover from the patient that since leaving school he had never experienced sexual excitement in the presence of men or youths belonging to his own station in life

It was only in the presence of men who were his social inferiors, especially privates in the army, that he experienced these sensations Nevertheless, the patient did own to me that he was always happiest in the society of military officers, amongst whom he is, I happen to know, exceedingly popular

I soon became fully aware of the terrific struggles my patient had repeatedly experienced, how hard had been his fights against this terrible passion and how bitter were the constant defeats, full of the utmost misery and despair!

The result of all this mental torture had been the production of what Freud terms a "Defense Hysteria"

When the struggle in the patient's mind had become so intense that some sort of relief was absolutely imperative, the sub-conscious self had attempted a defence by a "conversion," ie, the

transference of a portion of the sum of the excitement caused by the unbearable ideas into a physical manifestation (2)

Such a conversion may be total or partial, but it always follows that motor or sensory innervation which is either ultimately or more loosely connected with the traumatic experience

In this case the traumatic experience was the moral perversion and the connection between this and the patient's right hand was intimate, namely, through the masturbation and its attendant ritual

That the affection of the right hand was of a specific kind, ie, loss of power to write, further connotes an attempt on the part of the patient to submerge his own personality—a by no means uncommon psychical process, though more usually to be observed as a forgetfulness on the part of the subject of his or her own name (3)

It will be remembered that the patient's chief concern was with writing business letters and signing his own name, especially in the presence of his chief, all of which acts involve an emphatic consciousness of personality. The etiology of the patient's illness having been thus definitely ascertained, the treatment of the case resolved itself along two lines, namely, to (1) restore the full power to write, and (2) to attempt a conversion of the patient's homo-sexuality into a normal hetero-sexuality

To achieve the first a little suggestion was all that was needed, for, as in most cases of this kind, the cure is more than half completed at the moment the patient begins to realise the nature and relations of his own mental complexes

The reconstitution of the patient's sexual life was not so easy for he was so utterly and specifically homo-sexual that there was very little upon which to build the foundation of the new structure

The line of treatment as recommended by Moll (4), modified to suit the requirements of the case, was adopted

The patient made an extraordinarily rapid recovery from the hand trouble, completely regaining his full power of writing and, except for a slight relapse about 8 months ago which was immediately removed by a physician kindly acting on my instructions, he has been perfectly well for now over two years

In the other respect, 2e, the homo-sexuality, the patient is decidedly better

The desire to return to his old habits and the masturbatory complexes have disappeared

One is not therefore without hope that the patient may in time be in a position to achieve the great desire of his life, namely, to marry and have children

Case No 2—Mr Z, aged 30, unmairied, a few years resident in India, employed in very arduous work, consulted me for "indigestion."

Previous to seeing me he had been under the treatment of several doctors, but had experienced no benefit from their treatment

The patient said that the "indigestion" began about the year 1904 when he had been much overworked and unable to take any exercise

An examination of the patient's physical con-The patient was a dition revealed nothing thick-set man of great physical and mental To all appearances he was, when I saw him first, in the best of health Questioned about the indigestion the patient described his complaint as a "recurrent nausea," sometimes, but not always, followed by vomiting nausea bore no relation to food but was only experienced under circumstances of strong emotional tone of no matter what kind

Fear, anger, joy, anticipation (pleasant or unpleasant), and sorrow alike shared the capacity to evoke extremeties of nausea

The patient's family history was good sexual life perfectly normal Free association was carried out and for a long time (several days) the patient remained convinced in his own mind that he had no recollections beyond what he had told me, nor could he recall any event in his past life of importance (i.e., with any strong emotional affect) associated with nausea or vomiting

I was positive that the Free Association method, if ielentlessly persisted in, would reveal something of importance and my conviction was substantiated by my patient suddenly one day remarking "Yes, I do now remember that as a very small child, perhaps 4 or 5 years of age, being flogged daily by my father for refusing to eat treacle because the treacle caused me invairably to vomit"

Now it is inconceivable that the memory of so striking event in the life of anyone could be forgotten and only recalled with such difficulty unless there were some very strong motive for its suppression

Here then was probably the key of the situation and so it turned out The patient cherished an almost abnormal reverence for his father so that anything associated with the memory of his father that did not redound to his father's credit has been consistently suppressed. Further revelations regarding the patient's family brought to light still stronger reasons for a desire on his part to suppress anything unfavourable to his father

At a very early period therefore in the patient's life the emotions of fear, anger, and love and the sensation of pain became intimately associated with the act of vomiting

As the patient grew up and the compulsory consumption of treacle and as painful associations became a thing of the past the recollection of these episodes became famier and fainter, all the more so because it was highly repugnant to the patient to remember anything that in the least

vitiated his view of his father's virtues and attainments

However, the connection between his emotional experiences and the physical expression of vomiting had been formed and, like all other similar connections of this sort, it only required a strong emotional experience to resuscitate the whole complex

The strong emotional stimulus came many years afterwards in the sudden total collapse of the patient's father's business under peculiarly distressing circumstances involving the irretrievable rum of his father's reputation

The patient became convulsed with sorrow and all at once he began to experience extreme nausea (often followed by vomiting) whenever he met with an experience associated with an emotional affect

That the patient was at the time of his father's rum going through a period of great mental stress and anxiety in regard to his own work and future prospects only helped to reinforce the effect wrought on his mind by the misfortunes of his greatly beloved father

The causality of the patient's trouble was now explained to him in detail and it was shown him that the "indigestion" from which he fancied he had been suffering for so many years had no origin in any defect of his stomach but arose from a defect in his mind

A very little suggestive treatment coupled with simple advice in relation to the points at issue sufficed in a short while to bring a complete cure The patient has remained perfectly well now for three years and has lately married

He passed through all the strongly emotional experiences of courtship without a trace of his old trouble, although three years ago he could not, he told me, adminster a "wigging" to a subordinate in his office without having to leave the room afterwards and be violently sick !

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#### **H**ospital Mirror Practice.

# SPINAL ANALGESIA

BY W ROTHNEY BATTYE, MB, BSC, MS (LONDON), FRCS

MAJOR, IMS,

Residency Surgeon, Mewar, Udaipur

SEVERAL papers have appeared recently in the home medical journals on the subject of spinal analgesia, but very little reference to this subject has been made in India for some two years past As however this method of inducing anæsthesia is eminently suited for use in this country, and as now but few surgeons apparently practice it, it seems advisable to bring it once more to the notice of the profession in India

Barker first drew the attention of British practitioners prominently to this subject by his excellent

paper published in 1907 (1)

Early in the following year, I first began to use this method in Persia, shortly before taking long leave. After periods of furlough and employment on plague duty, and return to general surgery has permitted a resumption of the use of spinal analgesia.

The ensuing itemarks are based on my own experience, which, though not large, must be my excuse for writing on the subject. References will also be made to the itematical papers published

by others in England

It may be stated at once that the experience on which this article is founded has been gained entirely with Barker's solution of stovaine and the apparatus and methods recommended by him. Where his procedure has been modified or his views countered, the fact is stated, with reasons

The advantages of spinal analgesia may be

stated under the following heads —

1 Simplicity of apparatus—The requirements are —

- (a) One "Record 'syringe, 2 cc, graduated
- (b) Six Barkei's cold-drawn nickel needles, with stilettes
- (c) A supply of ampoules containing the requisite solution

The whole outfit costs less than three guineas

2 Ease of administration—This will be apparent when the technique is described. It

involves a simple lumbai puncture

- 3 Quickness of administration —When the apparatus has been sterilized by the diessei, the arranging of the patient, the insertion of the needle and the injection of the solution take not more than three minutes
- 4 Safety of administration Naming this as one of the advantages of the method may appear to be begging the whole question, but there is no doubt that with growth of experience, the method becomes increasingly safe. This is borne out by an examination of the large series of cases recently reported by Barker (3) and his colleagues, by Lawrie McGavin (4), and from the Cairo Hospital (5 & 6). An examination of the deaths reported under spinal anæsthesia shows that in most cases where the death could be definitely attributed to the anæsthetic, the surgeon had been accustomed to employ solutions of low specific gravity
- 5 Quickness of effect—The full] effect is usually obtained in three to six minutes—it rarely takes as long as ten minutes.

6 Duration of effect—This lasts usually for two hours—one and a half on the average, but it varies with the patient and the dose. The majority of operations can be completed in this time. A small amount of chloroform may be required to complete the operation (vide infia)

7 Completeness of effect—There is usually complete anæsthesia, as well as analgesia Occasionally the latter is obtained without the former, that is to say, that sometimes tactile sensation or sensibility to heat and cold is retained, while that to pain is lost. When the effect is beginning to wear off the patient sometimes complains first of all of a burning sensation and is sensitive to hot lotions.

Paralysis of the lower limbs is also complete in most cases. This is accompanied by flaccidity of the muscles. This complete loss of tone is especially valuable in the *sphincter ani* and the abdominal muscles. In operations on the rectum, digital dilatation is often hardly necessary owing to complete relaxation. The flaccidity of the abdominal muscles is also a great boon in abdominal operations.

8 Absence of shock—This is the most striking thing in operations done under spinal analgesia. This will be reverted to later

9 Absence of other immediate bad effects—
Nausea and retching are occasionally present,
vomiting quite infrequently. When any of these
do occur they pass off very quickly and the
patient settles down quietly. Dyspnæa occurs
uncommonly and only in cases where the
patient's head and shoulders have been lowered
to obtain a high analgesia. Syncope is quite
lare. Frequently the patient falls into a quiet
sleep and remains sleeping throughout the
operation. Short of this the patient is usually

placid and comfortable

10 Ease of observation of the patient's condition—The patient being fully conscious is quite able to report at once any unpleasant sensations. He can be engaged in conversation, and his condition gauged thereby. If he be asleep, he can be readily aloused when necessary

11 Large range of applicability—The method can be used in all cases below the diaphragm and even higher Analgesia can readily be obtained up to the nipple line Hitherto the highest operations I have done by this method have been for—

(a) Liver abscess with removal of a portion of the ninth rib in the posterior axillary line

(b) Ventral hernia under the ensiform cartilage Barker (3) deprecates the use of this method in cases of acute intestinal obstruction, but it is just in such cases that it is of the utmost importance to reduce the shock of the operation to a minimum, and Gray and Parsons have shown its special value in these cases (7) I have also used it successfully.

- 12 Feeding—It is a great advantage that it is not necessary to starve the patient before operation, as is the case before chloroform anæsthesia. Moreover, water stimulants and liquid food can be administered to the patient during the progress of the operation, provided it is not one on the abdominal viscera.
- Absence of bad after-effects -As compared with the frequent after-effects of chloroform anæsthesia these in spinal analgesia are distinctly Vomiting is very lare, an mild as a rule important point in abdominal and many other There is occasionally some headoperations ache, which can usually be relieved by analgesics It is seldom severe Retention of urine is fairly frequent in my experience but is confined mainly to cases of operation on the perinæum or genitourinary organs in which cases it is likely to happen under any form of anæsthesia Diplopia or nerve lesions have not been observed in my One case showed some mild mental distuibance
- hospitals are under-staffed. Often an extra assistant is needed at an operation but is not available, as one has to give the chloroform. The freeing of the anæsthetist to assist at the operation of to do other work in the hospital is often a great boon. If chloroform be required, it is usually almost at the end of the operation, when a man can be spared, and a few whiffs are all that is needed.

## THE SOLUTION

It has been stated above that most of the fatalities due to the anæsthetic which have occurred under spinal analgesia have been in the practice of those surgeons who have been in the habit of using solutions of low specific gravity. The formula for Barker's solution made up by Billon of Paris, is —

Stovame 0 05 grammes
Glucose 0 05 grammes
Distilled water 1 00 cc

The great advantage of this solution is that its specific gravity (1,023) is greater than that of the cerebro-spinal fluid (1,007) It does not therefore quickly mix with the liquor spinalis and can be made to flow to any part of the cord by so arranging the position of the patient that the part of the cord which it is desired to reach shall be lower than any other part. In this way the height to which the analgesia shall reach can be regulated at the will of the operator This is not true of other solutions of lower specific gravity It is probable that in this fact hes the greater safety of Barker's method He himself lays great stress (loc cit) on not raising the pelvis of the patient more than about one and a half or two He places a cushion not more than about one and a half inches thick under the patient's

pelvis as the latter lies on the table Personally I have not found it necessary nigidly to observe I always use a firm pillow about three and a half inches thick during the injection, and afterwards frequently put a second similar one on I have in several instances altop of the first most inveited the patient when a high analgesia was required or when the onset of analgesia was This, I believe, can be done with perfect safety, provided that the head and neck be kept propped up with a cushion at such an angle with the upper dorsal vertebræ that the heavy fluid never passes higher than the second or first Only one of my patients has suffered from dyspnæa after this procedure, and this soon passed off when he was propped up with a back rest and given an injection of strychnine other had some attempt at coughing, which was Expulsive power is overcome in the same way generally very weak in these cases I have not employed the Trendelenburg position during any of these operations

Richards of Cairo (5) lays stress on the use of fresh solutions and attributes some of his failures to the use of old preparations This may be true of some solutions, but there is no doubt that Barker's solution keeps remarkably well than two years ago I obtained a supply of this from London, and have been using it ever since with satisfactory results, and this despite the fact that it has passed through two and a half Indian hot weather, the last one showing a record of heat for Udaipui It is only during the past four, weeks that a slight change in the colour of the solution has been noticed, it having turned faintly greenish, whereas it should be colourless cident with this change, some of my recent cases have been suffering from post-operative pyrexia, which is something new As I have failed to discover other causes in some cases for this fever. I attribute it to some change in the stoyaine The inference is that as soon as Barker's solution shows any change at all in colour it should be rejected This has now been done

# THE DOSAGE

The usual dose as employed by Barker is one cubic centimetre (5 cgms) Occasionally he increases this to 1 2 cc (i e, 6 cgms), rarely more My earliest cases were always given 1 cc, but as in some of them I found that the analgesia was not sufficiently prolonged, the dose was increased to 20 cc for males, and 18 cc for females, and that was my practice for nearly two years without any ill results (with one exception, noted below) During the past three months however the dose has been reduced to 12 to 16 cc, according to the patient's sex physique, and the nature of the This has been found quite sufficient operation In children the dose is proportionately reduced according to age and physique My experience with children hitherto is small, and a child must usually be given a general anæsthetic to quiet it before the lumbar puncture is made. This may seem to do away with the chief advantages of spinal analgesia, but the reason for employing it with children will be mentioned later.

#### THE TECHNIQUE

As I have introduced a few minor modifications in Barker's method of obtaining spinal analgesia, I give here the technique employed in the Lansdowne Hospital, Udaipur.

Instruments—In addition to the syringe, there should be always two sharp needles ready with stilettes, in case the point of one gets turned, a sterile test tube for the cerebro-spinal fluid, and the file for opening the ampoule These should all be sterilized in a small special tray which can be lifted by itself and put into the main sterilizer on top of the operation instruments.

Great stress is laid by some writers on the importance of not sterilizing the syringe and needle in any solution containing an alkali, as any trace of alkalı decomposes the stovaine on coming in contact with it In this hospital the apparatus is always sterilized in the usual one per cent bi-carbonate of soda solution with the other instruments, but then the small tray containing it is lifted out and drained of the fluid and then put bodily into a dish containing sterile normal salt solution. This solution is later passed two or three times through the syringe and needle We have never found the stovaine to fail of its effect on account of any trace of alkalı The ampoule is dropped into a separate bowl of sterile normal saline

Position of the patient—The sitting position is occasionally employed, but only for perinæal operations. The patient sits on the edge of the operating table, with his feet resting on a stool. He then passes his arms forwards round his knees and bends forward with his head down, so as to arch the back as much as possible. The surgeon stands behind him on the opposite side of the table.

For all other cases it is better to make the puncture in the lateral recumbent position. The theatre diesser arranges the patient lying on the side, with one cushion under the shoulder, and a similar cushion under the great trochanter. If the operation is to be confined to one side of the body, the patient can lie on that side, otherwise it is a matter of indifference, but it should be arranged to get the best light.

The body between the two cushions curves downwards to reach the table. The knees are drawn up till they lie almost against the patient's chest and the head and shoulders are aiched forwards so as to make the whole back convex towards the surgeon. The back should lie close to the edge of the table. The dresser then

paints tincture of iodine on the proposed site of the injection and on several inches of skin all around

Filling the syninge -While the patient's position is being arranged, the surgeon having sterilized his hands passes the stilette into the needle to see that all is clear He then fits the needle to the syringe and two or three times takes up and ejects a syringeful of the salt solution in which they were lying He then puts down the syringe and needle in the dish. and takes up the ampoule of solution and the small file supplied and opens the former is then handed to Assistant No 1, and the surgeon taking up the syringe and needle draws up from the ampoule a little more than the requisite dose The ampoule is then placed open end upwards in a corner of the dish surgeon holds the syringe point upwards, withdraws into it what solution was filling the needle and removes the latter, placing it back in the He then ejects from the syringe all but the exact dose needed, and hands it to Assistant No 1.

The puncture—The surgeon then takes up the needle from the dish, remselts the stilette and gives this also to Assistant No 1 He then takes up a small sharp sterilized scalpel or tenotome and approaches the patient from behind, facing towards the patient's head while standing pehind the pelvis Now Assistant No 2, with an ethyl chloride spray in one hand and a sterile test tube in the other, places one finger on the highest part of the uppermost iliac crest of the With the index finger the surgeon feels patient for and marks the interspinous space opposite the level indicated by the assistant The latter then applies the spray to the marked spot and when the skin is frozen, the surgeon makes a small incision through it This incision is to reduce the 11sks of callying in infective material from the skin with the point of the needle, also the insertion of the needle is much less painful through the incision made than through the The freezing of the skin prevents ıntact skın the patient from feeling any pain from the This question of reducing the pain of the puncture is of no small importance with a nervous patient, who if alarmed by pain at the start may make the completion of puncture im-To steady the patient and to maintain possible the curvature of the back, the dresser who placed him in position continues to stand in front of him and hold his knees and shoulders in place

The surgeon then puts down the knife and takes the stiletted needle from Assistant No 1, who has been standing beside him. He then applies the point of the needle to the centre of the incision made, and with the needle directed accurately forwards in the median vertical anteroposterior plane of the body, at an angle of about

twelve degrees with a transverse plane through When the body is well the body at that point arched, it will be found that the needle, if correctly directed in the third lumbai space, is pointing forwards to a point on the anterior abdominal wall midway between the umbilicus and Then telling the patient to epigastric notch strain as if at stool, the surgeon pushes the needle boldly and steadily forwards, keeping it accurately He encounters at in the direction indicated first strong, then more yielding, resistance, as the needle passes through the supra—and interspinous This yielding resistance continues ligaments until the needle has pierced the posterior wall of the dura and entered the theca. Then there is a sudden relaxation of resistance, indicating that the thecal sac has been entered. The needle goes in about two inches in an average adult male

The injection —The surgeon than removes the stilette (and gives it to Assistant No 1) and the cerebro-spinal fluid begins to flow, usually in a rapid succession of drops, sometimes in a continuous stream, occasionally in a slow succession of This flows into the test tube held ready by Assistant No 2, while the surgeon takes the syringe from Assistant No 1 and expels all airbubbles from it Meanwhile, about one cc or more of spinal fluid has flowed from the needle, and then the surgeon applies the syringe to the needle and injects the full dose of stovaine is not necessary to withdraw spinal fluid into the syringe and mix it with the stovaine before In many cases it is impossible to do injection it, in other cases, where the pressure is high, it can easily be done, but it has this disadvantage that the mixing of the two reduces the specific gravity of the stovaine solution and so renders it more easily diffusible, and therefore less controllable by gravity inside the thecal tube

The withdrawal —While the injection is taking place, Assistant No 1 takes up a piece of sterile cotton wool from the dressing box and dips it into a small capsule of flexile collodion, previously placed ready. In the other hand he takes a strip of adhesive plaster, about eight by one inch square. The surgeon then withdraws the syringe and needle together with a steady straight rapid pull, and the assistant instantly applies the collodion cotton and fixes it with the strip of plaster across the loins.

Moving the patient—As soon as the plaster is applied, the dresser who has been holding the patient turns the latter over rapidly on to his back, holding him all the while with one arm passed under the bend of the knees. In this way he is enabled to raise the pelvis well off the table with one arm, while with the other he adjusts the cushion well up under the sacrum. In this he is assisted by one of the, others. The other cushion is then adjusted under the head

and shoulders of the patient, and the diesser with his arm under the bent knees keeps the thighs well flexed on the abdomen. The object of this is to keep the pelvis high and make the solution run lapidly to the most dependent part of the spinal theca somewhere in the dorsal legion. The exact position of this depends on the alrangement of the cushions

If high analgesia be required, or if it seem slow in coming on, another cushion is put under the sacrum and the pelvis even more raised by the dresser. This position is maintained until there is paralysis of the lower limbs and the analgesia, as tested by the point of a pin, has reached the required height. It is not advisable, especially with nervous patients, to harass them by repeated testing with a pin and asking questions about their sensations.

When the patient is analgesic, the pelvic cushions are removed, the legs carefully stretched out on the table and the patient's head and shoulders made comfortable an anæsthetist's screen is put in front of his face and he is then ready for operation. While the analgesia is coming on, the surgeon and assistants resterilize their hands and get finally ready to proceed with the operation

The above is the technique in normal cases, which constitute the majority. Difficulties, however, may be met with

1 The needle may be arrested and not go far enough

Probably the tilt has been either too great or too small, and the point has struck the spinous process above or below. If so, withdraw the needle, correct the angle and try again

2 The needle may go in too far and not strike fluid

Probably the needle has deviated to one side of the middle line and missed the theca. The needle must be withdrawn then correct the direction and try again

3 The needle may appear to have gone in correctly, but no fluid comes out

Probably the posterior wall of the dura mater has not been pierced, but it has been pinned to the anterior wall This may happen with blunt needle It may be overcome by making the patient strain to separate the thecal walls, withdrawing a little and then pushing on a little further Do not use a blunt needle Or it may be that the dura mater has been pierced, but the small triangular flap made by the needle is blocking its aperture This may be got over by turning the needle round, when probably the fluid will flow Barker has invented a special blunt-ended perforated stylet to overcome this, but hitherto I have not found it necessary

4 Blood may flow instead of clear fluid

If the spinal fluid is merely coloured by blood, it does not matter, but if pure blood comes out,

probably the needle has gone too far and pierced the posterior common ligament and one of the verns lying between the enterior aspect of that structure and the body of the vertebra. In this case it is better to withdraw the needle at once, and reinsert in another spinous interspace

In all cases it is better to make a fresh puncture in the next higher interspace, than to go on making several attempts in the same place

5 Finally, in a few cases it seems impossible to get in, more specially in old persons. This is probably due to ankylosis of successive spines from osteo-arthritis. In some cases it seems impossible to find an interspace for the primary incision, as the spines appear to be continuous. In such cases spinal analgesia is abandoned

#### ARGUMENT FOR OR AGAINST.

In Barker's latest admirable paper (3), he discussed the case "for or against" spinal analgesia

To a surgeon operating in a populous European town, with skilled anæsthetists always within easy call, the case "for" spinal analgesia may not appear overwhelmingly strong. To one, however, whose life work is placed in India, where a skilled anæsthetist, as a special class, is almost unknown outside the Presidency towns, the case presents itself in a totally different light

Such a surgeon remembers too well how his constant anxiety during operation is the patient's condition, as affected by the anæsthetic, usually chloroform he remembers how often the patient is allowed to "come when during operation, there ensues vomiting or struggling or both or how sometimes the patient suddenly stops breathing at an important stage of the operation, which must then be stopped while the surgeon sets to work to rescusitate the patient This is not a fanciful picture. I have seen it in other hospitals than my own and if the surgeon train his anæsthetist, the latter may be transferred elsewhere or the surgeon himself, and so he has to begin training a man over again Chloroform must be given in many cases and the training must be undertaken, but to a surgeon who has to face such experiences there can be no question "for or against" spinal analgesia it is all "for" in suitable cases. When used, the surgeon is freed from the anxieties I have indicated. If the effect of the stovaine begin to wear off, it does so very gradually and in ample time for a suitable moment to be chosen to stop the operation for a minute or two while chloroform is administered A very small amount is needed to quieten the patient and keep him quite comfortable and it can even be given without arresting the operation

Further, in case it should become advisable to extend the operation after it has been begun and the patient's consent is necessary, this can be at once obtained, as the patient can be consulted at the time. This is very important and is by no means a hypothetical contingency.

#### SHOCK

A fai more potent argument, however, in favour of the use of spinal analgesia, and one which must appeal to all surgeons alike, whether in Europe, India or elsewhere, is its undoubted value as a preventive of surgical shock

To one who has repeatedly seen the seiene, peaceful and contented appearance of patients throughout and after severe operations under spinal analgesia, and their

complete exemption from all clinical signs of shock, and has contrasted it with the very different state of affairs prevailing during and after similar operations under chloroform, in patients otherwise comparable, the appeal in favour of spinal analgesia is irresistible

An explanation of this has been sought for by Gray and Parsons (7) and they have thrown much light on the subject. Their experiments and observations not only fully confirm, but also add much to what had already been noted as clinical facts.

The question may then fairly be asked, whether in the light of this new work, confirming clinical observation, a surgeon is justified in exposing his patients to the lisks of severe surgical shock associated with some operations performed under chloroform when those risks may be avoided, or at least greatly lessened, by employing spinal analgesia. This is particularly the case in operations on the abdominal viscera, the hip joints etcetera, especially in children

In the latter class of patients its value is so great, that it should be employed, even though in some cases it may have to be combined with the light administration of chloroform.

In such cases it is not used as an alternative to chloroform, merely to annul pain, but definitely for its effect in blocking all afferent impulses to the higher centres, which might lead reflexly to severe fall of blood pressure from pressor fatigue. It is worth noting here, that in some operations the spinal "block" by stovaine, etc., is needed to cut off afferent impulses from the higher centres for an opposite reason. For instance, in the operation of prostatectomy under chloroform, there is apt to be a very great rise of blood pressure, this may lead immediately to dangerous effects, from heart failure in an old hypertrophied heart, or to cerebral hemorrhage with atheromatous vessels. These dangers are avoided by spinal anæsthesia.

Some persons may consider that this method is still in too embryonic a state for general adoption by operating surgeons but so much work has now been done on this in Europe and elsewhere, that it can hardly be any longer regarded as pioneer work. The technique may deter others. Yet in these days when lumbar puncture is so frequently practised for the diagnosis and treatment of diseases of the central nervous system, the latter reason should not act seriously as a deterrent With a little practice the procedure becomes a routine and quite easy

Perhaps those who prefer to wait may have the whole treatment of surgical shock simplified for them by the employment of a prophylactic vaccine, or some other preparation. Just as sometimes one employs prophylactic injections of various coccal vaccines or of tetanus antitoxin prior to operation, or doses of calcium chloride to guard against homorrhage, so the day may be not far distant when we may have at our disposal preparations of some product of nerve degeneration, such as choline or one of its allies, by which we may immunize our patients against surgical shock. This is almost certainly due to an auto-nerve-toxin, which by paralysing the synopses of the pressor fibres, leads to the domination of depressor impulses (Gray and Parsons loc cit). It only remains to isolate this toxin, which is a work for the physiological chemist.

Meanwhile, in addition to nerve blocking by spinal analgesia, we can do much to save our patients from shock by the judicious employment of various narcotics, such as scopolamine and morphine, and stimulants such as strychnine and atropine, and sometimes adrenalin, pituitin and tyramin. At present in the Lansdowne Hospital, Udaipui, the routine practice is to give a combined dose of—

scopolamine one hundredth grain, and

hypodermically the night before operation, and to repeat the dose next morning an hour before the operation.

On the operation table the patient is given a combined dose of-

strychnine hydrochloride one-sixtieth grain, and atropine sulphate one hundred-and inftieth hypodermically before the general or the spinal anaesthetic is administered. The doses given are those for adult males in fairly good health. If the solutions are quite fresh they are more active and the dose can be reduced It is also proportionately reduced for debilitated males and for females We have not used the narcotics for children If any of the drugs are definitely contra indicated by the patient's condition, they are of course not given. It is at present too early to speak of conclusions regarding this routine procedure, but so far the results have been encouraging

#### Cases.

With reference to my own cases of operation under spinal analgesia, in stating that I began to employ this method nearly five years ago, I do not wish to convey the impression that my number of cases is large. It is not For a long time only selected cases were thus treated I am unable to give the actual figures, as owing to my movements, to operating in another surgeon's hospital, to operating with assistants who, equally with preself were hard worked and have equally with myself, were hard worked and harassed, notes of some cases are not available and of many others are very meagre. The cases, however, include the following operations -

> Amputation of limbs Excision of joints Removal of tumours Litholapaxy Castration Complete extupation of penis Prostatectomy Urethrotomy Ovariotomy -Omentopexy

For Acute intestinal obstructions

- Livei abscesses
- Piles "
- Herma, "
- Hydroceles 11
- Abscesses 33
- Sinuses
- Enlarged glands
- Necrosis of bones.

Particulars regarding the lumbar puncture, the results and the after effects are now recorded in this hospital in each case on a special form (vide pattern

### Fatalities,

So far there has been one death directly attributable to the anasthetic The prtient was a very hysterical old widow who had many complaints centred in the abdo Nothing short of operation would satisfy her, though this had been repeatedly refused by me Ler importunities were yielded to and she was put on the table for exploratory abdominal section Lumbar puncture was carried out with some difficulty and analgesia obtained, but even then the patient refused to be touched while conscious, and so chloroform was reluctantly In about two minutes the patient saddenly cessed to breathe, and all efforts to rescusitate her proved unavailing. The death in this case may fairly be attributed to the combined anesthetics, noting also that the dose of storaine was the unnecessarily large one formerly employed in this hospital, before the more recent reduction in dosage was made (vs) There is no doubt that this was also largely a case of mental shock, as the patient was in a state of maniacal excite mert before the chloroform was administered. Such a case should certainly be lightly chloroformed preparatory to making the lumbar puncture, and only a minimal dose injected

Two other deaths have occurred after operation under spinal anæsthesia

The first was a case of advanced acute intestinal obstruction, brought to hospital after the condition had existed for three full days in a very old man. He slept through part of the operation, but was almost mori-bund when the operation was undertaken, and he died about an hour after removal to his bed This case would almost certainly have died under any form of anæsthesia. Another recent case of acute intestinal obstruction brought to hospital on the third day of the illness in a young man did quite well, with

The second case of death after operation is a recent The man was suffering from very severe secondary anæmia due to bleeding piles. He was operated on with ligature and cautery, there was no bleeding at the operation, and he appeared to be doing fairly well daily made complaints of vague discomfort in the back limbs and joints, and of general weakness, exactly similar to the complaints he had made before operation His pulse throughout was small, soft and with an average frequency of about 100 per minute. There was hardly any use of temperature. He passed his urine voluntarily on the evening after the operation, but the next two days had retention. On the following days he passed it all right The blood pressure was not taken at any time (it is usually taken only in our medical wards) On the morning of the eighth day, he got up and went to stool outside the ward Immediately on his return to his bed, he died suddenly of heart failure It is a moot question whether this death was due to the stovame or to natural causes It occurred a full week after the injection was given, during which time he had showed no symptoms attributable to the stovaine He certainly should never have left his bed It is sure that his condition after operation would have given far more cause for anxiety had he been chloroformed. In fact I should have hesitated seriously before operating on him under chloroform stovaine was partly responsible, then it may have been due to its age, as this man was done recently with one of the ampoules (vs) which had sligetly changed its colour though this was not noticed at the time

As nearly every case of operation below the dia phragm is now being done in this hospital under spinal analgesia, and systematic notes are being made useful experience will accumulate Various modifications may in time be introduced, especially with legard to the combined use of narcotics but though these may assist, yet the main important pieventive of shock is the nerve-blocking obtained by the spinal injection venous infusions for general anæsthesia owing to the complicated technique, are not likely to replace spinal analgesia for operations on the lower half of the body The action of this spinal block is in every respect comparable to that of the injection of cocaine, etc, into large neive trunks which have been badly crushed or prior to their division in amputations. In the one case the shock is relieved, in the other it is prevented

Any one not familiar with the principles of the method should certainly consult Barker's papers (1, 2 & 3), and should also employ his solution, as the best results hitherto recorded have been obtained with this

#### REFERENCES

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- (3) Barker, B M J, 16th March 1912
- (4) McGavin, B M J, 231d December 1911
- (5) Richards, B M J, 23rd December 1911 (6) Madden, B M J, 17th August 1912
- (7) Gray & Parsons, Arris and Gale Lectures, 1912

### LANSDOWNE HOSPITAL, UDAIPUR

SPINAL ANALGESIA

Case Report

NAME

son wife ( daughter

 $A_{GE}$ DISEASE OPERATION

NAME OF OPERATOR

Stovarne

Solution used

Dose

Position of patient for injection

Site of injection

Interval before analgesia present

Height of analgesia Duration of analgesia Duration of operation

Other Anasthetics employed

Dose Night before Operation morn

Scopolamine Morphine

Strychnine

Just before During operation

Atropine

For how long

Chloroform

Effects of Stovarne Injection

In operating room

Yawning Sleep

Dyspnœa

Coughing

Nausea

Retching

Vomiting Tingling

Pain

Later 1st day 2nd day 3rd day Later

Fever Nausea Retching Vomiting

Headache

Backache Tingling

Pains in legs

Paralysis Retention of urine

Dulness of mind

Loss of memory Sleepiness

Coma

Other effects

REMARKS

### ABDOMINAL SECTION PERFORMED ON A PATIENT ANÆSTHETISED BY INTRA-VENOUS INFUSION OF ETHER

By G G GIFFARD,

LT COL, IMS,

Supdt, Govt Maternity Hospital, Madras,

AND

F C FRASER,

CAPTAIN, I M S ,

Asst Superintendent, Govt Maternity Hospital

This patient, who had been operated on for

with a large vential hernia The abdominal section done on 13th December, 1912, was for the cure of the herma This was the first case done at this hospital with intravenous ether anæsthesia The apparatus used was Rood's Apparatus for Infusion Anæsthesia (Meyei & Meltzei £6-18-6)

Five minutes before starting the anæsthetic, half a grain of beta eucain hydro-chloride in solution was injected into the right foreaim and the This vein was selected as the ulnai vein opened median was concealed from view by subcutaneous Dr Rood's apparatus was employed, a 5 per cent solution of ether in normal saline, well shaken up before use and heated to a temperature of 100°F, being infused The conjunctival reflexes vanished after some ten minutes The flow was turned full on to begin with and until rather more than half a pint of the mixture had entered the vein The flow was then retarded and frequently slowed down to a minimum rate, but never was turned off entirely lest clot-The patient ting in the vein should take place was under the anæsthetic for some forty minutes, taking in all a pint and a half of the mixture (equivalent to an ounce and a half of ether) The only adverse symptom exhibited was a passing attack of hiccough, breathing was easy and steady Although under for the greater part of the time deep narcosis at the termination of the operation, she recovered concrousness in five minutes time taken (viz, ten minutes) to put the patient "under" was long, and, to avoid this delay in future, a stronger solution (8%) will be employed The early phases of anæsthesia were most interesting-patient whimpered and complained of faintness and giddiness—there was but slight restlessness, a rapidly passing phase of excitement and patient then sank into unconciousness

Rood's apparatus consists of a series of reservoirs, the upper, a container, followed by a drop-bottle-system for perception of the rate of flow and a third which is immersed in a copper tank filled with hot water (temparature 100°F) to warm the solution immediately before it enters the vein-from the lower reservoir a tube and canula to conduct the fluid to the vein

The patient vomited some clear fluid shortly after she had gone back to bed The recovery No headfrom the anæsthesia was very rapid ache, dry tongue, thirst, restlessness or any other bad symptoms occurred

### A CASE OF PERFORATING ENTERIC ULCER OF THE ILEUM

BY J FISHER,

MAJOR, IMS,

Mayo Hospital, Jaipur

NATHU, a Hindu boy, aged 20 years, was admitpyosalpınx ın April 1911 came back to hospital | ted to the Mayo Hospital on 10th September

1912, suffering from acute peritonitis with obstruction, vomiting (not fæcal) and great pain There were general distension and rigidity of the His temperaabdomen but no localised signs respiration 34 ture was 100 4, pulse 88 boy's father said the symptoms had started three days previously with severe pain in abdomen and somiting I decided to explore the abdomen at once, on opening the peritoneal cavity there was an escape of foul smelling gas and thin After a short search a small purulent fluid clean cut perforating ulcer of the ileum was found, leaving a small circular hole on the peritoneal surface of the gut about the size of a number 4 shot fæcal matter was exuding The intestines in the neighthrough this ulcei bourhood of the ulcer were covered with yellow-The gut was sht up ish gelatinous lymph with seissors passed through the ulcer into the lumen of the gut both above and below the ulcer, leaving a slit in the long axis of the gut about an inch long this was then closed with horse-han sutures The lymph was sponged and peeled off the intestines, and the whole abdominal cavity well flushed out with warm saline The peritoneum and muscular layers were closed separately with reindeer tendon Tincture of iodine was applied to the wound, no dressings were used except that a small piece of sterile gauze was laid over the wound The operation lasted about 25 minutes The patient was subsequently given four doses of mag sulph each at intervals of two hours

By the 12th September the temperature had come down to normal where it remained except for two slight rises. The tongue was very dry, cracked and furied for about a fortnight after operation. The abdominal tenderness and rigidity cleared up gradually. Troublesome diarrhæa started the third day after operation and lasted for a fortnight.

The abdominal wound naturally broke down but not badly and was practically healed a month after operation. The patient left hospital on 23rd October in good health

A more complete history of the illness was obtained later on the acute symptoms of perforation had lasted for three days before admission, but for 10 or 12 days before that the patient had not been well and had daily fever though going about all the time. I have no doubt the case was one of neglected enteric fever with perforation about the end of the third week.

The chief interest of the case is in the possibility of recovery of a patient in whom perforation had occurred three days before operation. The father was quite definite about the length of time and his statement was borne out by the appearance of the peritoneum which made the operation seem a very forlorn hope. PNEUMOCOCCAL PERITONITIS OCCUR-RING DURING PAROTITIS WITHOUT ANY LESION BEING DISCOVERED IN THE ABDOMEN

BY N S SYMPSON,

CAPTAIN, I M S ,

Medical Officer, Lawrence Military Asylum, Sanawar

THE patient, a girl aged 14, had been sent to the isolation ward on the 17th March 1911, The Sub-Assistant-Sursuffering from mumps geon was sent for to see her on the night of the 21st She complained of acute pain in the lower part of the abdomen I saw her the next morning, she appeared to be in great pain and had had a restless night, her face was flushed, the tongue was thickly coated and her temperature was On examination, there was marked tenderness in the left iliac region and the left A provisional diagnosis of rectus was 11g1d ovaritis, a complication of the parotitis was made. She was given a saline purge, and hot fomentations were ordered

The abdominal condition continued unchanged, on the 23rd she had several small motions containing streaks of blood and mucus, and she was put on small doses of magnesia sulphate every two hours. The fomentations were continued

On the 24th she was distinctly woise, the pain and tenderness were now general and she lay in bed with her knees drawn up, both recti were rigid. An examination per rectum revealed nothing definite. A diagnosis of peritonitis was now made. In the afternoon the abdomen was opened below the umbilicus, the peritoneal cavity contained a fair amount of sero-purulent fluid, and the intestines were intensely congested and coated with thick lymph

The appendix shared in the general inflammation and it was removed, the tubes and ovaries examined—the left ovary was slightly enlarged and cystic. A careful search was next made of the abdominal viscera, but no lesion to account for the peritoritis was discovered. The pelvis and abdomen were swabbed out as thoroughly as possible, and the upper part of the abdominal incision was closed leaving the lower portion open with a gauze drain in. She stood the operation, which lasted about 45 minutes, very well. The patient had a bad night—she was very restless and was delirious at times—she gradually sank and died at 9-30 AM on the 25th.

A bacteriological examination of a smear taken from the peritoneal cavity revealed an organism giving the morphological and staining properties of the pneumococcus Ashby and Wright, in their Disease of Children, state that peritonitis, without any evident lesion in the abdomen, is invariably due to the pneumococcus, and they are of opinion that the infection reaches the peritoneum via the lymphatics In their experience, such cases are usually fatal

In this case, the patient had never suffered from pneumonia, could the parotitis have had any causal relation to the peritonitis?

#### APPENDICITIS IN A HERNIAL SAC

By H WATTS, MB, B,S, (LOND),
CAPTAIN, IMS

Civil Surgeon, Betul, C P

The patient—a male aged sixty years—was brought to the Main Dispensary, Wardha, on September 8th, about 2 PM, in a "ringi" from a village some five miles off he was able to walk and his general condition was not bad

He complained of a painful swelling in his scrotum. His history was that he had had a swelling in his right groin since childhood, which could be reduced by pressure, but which gradually got larger. He had had pain in this for the last three days and it had got much larger.

He had had no sickness, diariheea or constipation Examination showed that his tongue was clean and moist, his abdomen not distended, but supple and moving freely

His scrotum was about the size of a feetal head, tender and reddened there was no impulse on coughing the swelling passed up into the abdomen on the right side—this part was particularly tender

His pulse was about ninety, full and bounding It seemed that, though he was not suffering from strangulation at the moment, he had an inflamed hernia, which was pretty sure to pass into that condition before long

He was with some difficulty persuaded by my tactful Sub-Asst Surgeon to stay in hospital and undergo operation, as his idea was to get some medicine and return home

He was given an enema, but there was only a slight result he was cleaned up for operation, which took place soon after 5 P M

The ordinary incision over the neck of the swelling was made, and a quantity of foul smelling fluid containing white flakes escaped, when the sac was opened

When the contents of the sac were exposed, they were seen to consist of the appendix, cæcum and ileum, all very much inflamed and thickened they were pulled down and isolated by a towel.

The appendix was adherent to the cæcum and when the firm plaques of lymph that fastened it were removed, a small quantity of pus escaped from the point when the tip of the appendix was adherent to the cæcum the appendix was isolated on a large piece of lint

The pentoneum round the base of the appendix was then incised and a cuff turned back (it was very much thickened), a ligature applied, the appendix cut through, the stump touched with pure carbolic and then buried by catgut sutures the wall of the cæcum was so stiff and friable that it only came together very half-heartedly over the stump, some of the stitches tearing through

The gut was well douched with normal saline Considerable difficulty was experienced in getting the intestine back, it being so stiff and swollen, that the neck of the sac had to be widely incised, and after this it was no easy matter freeing the sac sufficiently high to get a ligature round its neck, all the structures of the coid being very firmly adherent

The sac was eventually tied with strong silk and the ext oblique united with catgut, a continuous silkworm gut being used for the skin except at the lower end, when two loose stitches were put in and a small drainage tube inserted

His condition at the end of the operation was quite good, he was given gi \(\frac{1}{4}\) morphia that night, slept well and complained of hunger next day

Except for a little superficial suppuration in the middle the wound healed quite well, the stitches being all removed in ten days

Except for an intercument attack of dysentery he made an uninterrupted recovery, though of course there was some thickening in the region of right Poupart's ligament

Chloroform was very successfully administered by Rao Sahib Govind Vithal for some two hours and a half, and I was ably assisted by Sub-Assistant-Surgeon Mangialkai during what, owing first to flies and then to smoky lamps and inquisitive beetles, was a somewhat tiring operation for all concerned

Curiously enough we had two other appendix cases in our small hospital at the same time, one came in with a very chronic abscess that was opened and did very well, while the other was brought with acute peritoritis in a state that forbad interference in a couple of days he showed localising signs in his right iliac region and so an incision was made and some pus evacuated even then however his general condition was so bad that he succumbed in twelve hours, though I think we might have pulled him through if we had had at our command all the resources of a well equipped hospital

# Indian Medical Gazette MARCH

### SPECIAL PROMOTIONS IN THE I M S

THE London Gazette of 15th November 1912 contained the following notification —

"The King has been pleased to approve of the following promotions in the Army, in recognition of the services of the undermentioned officers on the occasions of the attacks made upon a detachment of the 39th King George's Own Central India Horse, near Kazerun in Persia, in December 1911

August 29th, 1912

Brevet -

Major H B Birdwood, Indian Army, to be Lieutenant Colonel

Captain W T McCowen, Indian Medical Service, to be Major"

Captain William Thomas McCowen entered the I M S as Lieutenant on 30th January 1904, becoming Captain on 30th January 1907, so gains three years and four months by this special promotion, and for the time goes over the heads of about one hundred and fifty men who entered the service above him. The exact number cannot be stated, as some more of the men who entered on 29th January 1901 may yet get special accelerated promotion to Major, and rank from 29th July 1912. At present the number appears to be one hundred and forty-eight

Such special promotions have been very rarely given in the I M S, the total number of cases up to date being less than a dozen instance in modern times was the promotion of the four Assistant-Surgeons of the I M, S who took part in, and survived, the defence of Lucknow, Joseph Fayrer, S B Partudge, H M Greenhow and Robert Bird, who were all piomoted to Brevet-Surgeon from 7th September A fifth, J W Amesbury, was subsequently promoted to Brevet-Surgeon from 14th August 1860, for his service in the mutiny. In the case of these five officers the promotion was Brevet promotion only, 2c, while they got the rank and pay of Surgeon from the date of their promotion, they got no further steps out of then turn but dropped back into their original places in the service when they got the next step from Surgeon to Surgeon-Major Currously. not one of these five officers rose to the adminis-

Fayrer, Partridge, and Greenhow, trative ranks all retired as Surgeon-Majors, Biid as a Brigade-Amesbury was passed over for promotion to the Brigade lank, equivalent to the present "Lieutenant-Colonel selected for promotion" and, while still in the service, died at The other four Masun on 6th October 1881 all survived the mutiny from thirty to fifty years Bird died at Cobham, Vinginia, on 31st October 1890, Partridge in London on 7th May 1898, Fayrer at Falmouth on 21st May 1907, while Greenhow, the last survivor, died at Ester so recently as 26th November 1912. Sn Joseph Fayrer, of course, left his career in India for better prospects at home, the Presidency of the Medical Board at the India Office, which he held for over thirty years

G. G. G. No. 941 of 6th October 1868 ruled that such special promotions should in future be substantive, and not Brevet only. This ruling was repeated in a despatch from the Secretary of State for India, dated 12th February 1891, and published in I M D circulars for 1891, page one. It is here laid down that an officer promoted to higher rank for distinguished service is entitled to benefit throughout his service by the higher position he has gained

During the half century from the mutiny to the present day, such special promotion for distinguished service has been given in only six cases—

- (1) Surgeon John Lumsdame, Bombay, promoted to Surgeon-Major on 15th August 1868, for service in the Abyssiman War
- (2) Surgeon-Major C Sibthorpe, Madras, promoted to Brigade-Surgeon on 17th May 1886, for service in the Campaign in Burma in 1885.
- (3) Surgeon-Lieutenant-Colonel H Hamilton, Bengal, promoted to Biigade-Surgeon-Lieutenant-Colonel on 20th May 1898, for services in the Triah Campaign
- (4) Surgeon-Major T Granger, Bengal, promoted to Surgeon-Lieutenant-Colonel on 20th May 1898, for service in Tuah
- (5) Surgeon-Lieutenant-Colonel II B Biggs, Bombay, promoted to the selected list from 2nd October 1898, for services in the North-West Frontier Campaign of 1897-98
- (6) Major C C Manifold, Bengal, promoted to Lieutenant-Colonel from 29th November 1900, for services in China.

Of these officers, the one who gained least by his special promotion was Lumsdaine, and he gained eighteen steps (It must be remembered that the Bombay Service has always been much smaller in numbers than Madras, and less than half the strength of Bengal) Among these whom Lumsdaine went over were (Sir) William Guyer Hunter, and Thomas Beattie, both of whom afterwards, in turn, became Surgeon-General of Bombay, and thus again went over Lumsdaine

The man who gained most was Sibthorpe, who entered the service on 1st April 1870, became Surgeon-Major on 1st April 1882, and Brigade-Surgeon on 17th May 1886, with only sixteen years service. As might have been expected, he became Surgeon-General of Madras. Amongst those whom he superseded was D. Sinclair, his successor in that appointment.

Hamilton gained thirty-seven steps, amongst those whom he passed over was (Sir) Geiald Bomford, who again went over him as Director-General, though Hamilton also lose to be Surgeon-General Briggs, in the small Bombay Service, gained eighteen steps Colonel Grainger gained over seven years by his special promotion, becoming Suigeon Lt-Colonel less than nine months after his promotion to Surgeon-Major, and Colonel Manifold gained over six years becoming Lt-Colonel less than twenty months after he reached the rank of Major Both, of course, became Colonel several years earlier than they would have reached that rank in ordinary course

Two years ago, three Brevet promotions for scientific work were given in the I M S, Lt-Colonel Bannerman (now Suigeon-General of Madras), and Lt-Colonel H F Cleveland, of Bombay, being promoted to Brevet-Colonel, and Captain S R Christophers to Bievet-Major, all from 1st January 1911, and on 11th November 1910 a Brevet Colonelcy was bestowed upon Lt-Colonel J Shearei, CB, an officer who had seen much active service, but was debarred by age from substantive promotion, and who retired less than a month later on 6th December 1910

In the latter part of the eighteenth century a good many Brevet promotions were bestowed on men of the Bengal Medical Service, and a

few permanent promotions also, for service in the first Maratha and second Mysore Wars These are recorded in the Military Consultations from 1778 to 1782

The Bengal Military Minutes of Council of 30th May 1778 contain a petition from Asst -Surgeon Walter Ross Munio (he signs himself Ross Mumo, omitting his first name, Walter), asking for Bievet rank as Suigeon while on sei vice withColonel Leslie's detachment Munio quotes as piecedents similar Brevets given Thomas when sent to Madias, and Messis Calciaft and Phillips, sent last year to Bombay" The Bengal Government gave him Brevet rank as Surgeon "to endure so long as he shall continue on the present service and no longei " This Brevet was for service in the first Maratha Wai

The minutes of 15th July 1778 record the grant of Brevets as Surgeon, to date from their appointments as Asst-Surgeon, to Robert Johnstone and George Boyd, attached to Colonel Leslie's detachment in the first Maratha War These Brevets were to remain in force till their return to cantonments

The same minutes record on 26th January 1781, the grant of Brevetrank as full Surgeon to Asst-Surgeon John Williams while serving with the detachment under Colonel Pearse, ie, with the Bengal force sent to march to Madias for service in the second Mysore War

Again the minutes of Council of 21st May 1781 note the grant of a Brevet as full Surgeon to Asst-Surgeon Charles Land while serving with Major Popham's detachment This was in the first Maratha War

The Bievet lank given to Thomas Calciaft, Phillips, Munro, and Williams, was Brevet rank only, and, moreover, was only temporary, for the duration of service beyond the bounds of the Bengal Presidency, in forces serving along with those of the other Presidencies, Bombay in the first Maratha War, Madras in the second Mysore War The object of the grant obviously was to give to these Bengal officers, seniority over the Madras and Bombay officers along with whom they were serving

Land's case appears to have been somewhat different, as the Brevet promotion, though, as in the case of the other five, local and temporary

only, was given for good service which is recorded as follows —

"The gallant behaviour of M1 Laird at the capture of Gwalior entitles him to our particular attention, we therefore direct that Mr Laird be appointed a Bievet-Surgeon during his continuance with Major Popham's detachment, and that a warrant be made for him accordingly"

Laird was fortunate enough to earn honourable mention a second time during the same year The minutes of Council of 31st December 1781, contain a number of General Orders issued by the Governor-General, while at Chunar from 22nd August to the end of the year and published to the Army by the Commander-in-Chief on 31st December One of these General Orders, dated 8th September, recording approbation of the attack on the camp of the enemy (Chart Singh of Benares) at Patita on 4th September, by the troops under Captain Blair, says—

"The Governor General also highly recommends the care and activity of Mr Laird in his attention to the wounded during the action"

Charles Laird's history is interesting, as he is one of these officers who hold "double commissions," combatant and medical, at the same time. The minutes of 24th May 1781 contain the following note—

"Agreed also that Mi Chailes Laird, who has served for some time with reputation in the army as an Asst-Surgeon, be placed at the head of the List of Cadets who have been appointed in the country since the 1st of January last"

Charles Land served as Surgeon of the Indiaman Stafford from 1774 to 1777, and of the Gatton in 1778-80 He was locally appointed in Bengal as an Asst-Surgeon, on the recommendation of Surgeon-General Daniel Campbell, on the minutes of 21st January 1779 minutes of 24th June 1781 contain a list of Cadets of Infantry appointed Ensigns, his name is the He remained an Ensign less than two months getting his next step to Lieutenant on 21st July 1781 He does not seem ever to have actually served as a combatant officer on 22nd November 1781 he was appointed Surgeon at Rungarh (Hazarıbagh), and on 28th January 1784 became Residency Surgeon at Hyderabad He was promoted to Surgeon on 21st October 1783 resigned the service and went home, with permission to return to his rank on 22nd December 1788 was struck off as absent for

five years, at the end of 1793, and died at Florence in 1795

Curiously, Charles Land's brother James had a career not unlike his own, and was also one of the few medical officers who held double com-After missions serving as Surgeon of the Seahorse in 1777-78, and of the East Talbot in 1779-81, he was locally appointed Assistant-Surgeon in Bengal on 7th April 1780, and Cadet He became Ensign on 13th August 1781, and Lieutenant on 1st June 1783 was the last medical officer to hold a combatant G O of 23rd July 1789 records that he had been called upon to resign one or other of his commissions, and had chosen to remain in the Medical Service He became Surgeon on 2nd May 1790, 1etired on 27th May 1801, and died in London on 6th January 1816

At this time there were three Surgeon-Majors in the Bengal Aimy, one for each of the three Bugades which composed the force Local and temporary rank as Surgeon-Major was sometimes conferred as the Senior Medical Officer of a force on active service The Minutes of Council of 6th March 1781 record that Surgeon James Ford, Senior Surgeon to the detachment employed under Lieutenant-Colonel Camac on service beyond the Jumna, was appointed Surgeon-Major to that detachment This was during the first Maratha War And the same Minutes 29th March 1782 note that the rank of Surgeon-Major was conferred, with effect from 1st November 1780, on John Laird, Senioi Surgeon of the Bengal forces serving in the Carnatic during the second Mysore War Whether John Laird was any relation of James and Charles Laird does not seem to be recorded He was much senior to them in the service, having been appointed on 23rd February 1771 as Surgeon Having previously served for six years in the Company's factory at Canton, he was appointed Surgeon on list entering, without going through the grade of Assistant-Surgeon He resigned and went home on 28th December 1788, but returned in 1791, when he was appointed President of the Medical Board, a post which he held, as head of the service, for nine years, till he again went home on 8th December 1800 He retired on 2nd June 1802

The procedure of giving temporary administrative rank to the Senior Medical Officer of a force on active service in addition to the fixed

establishment of the rank, has continued in force to the present day. In several cases in comparatively recent years, such rank, as Deputy Surgeon-General, and more recently as Colonel, has been given, as a temporary measure

Two medical officers received permanent and substantive promotion for service in these wars, both for the second Mysore War The Minutes of Council for 15th March 1782 order

"Agreed that M1 George Harrison, Assistant Surgeon, be promoted to the rank of Surgeon in consideration of his voluntary offer to go on service to the coast, and that Mr William Dick and Mr Robert Grant, Assistant Surgeons, be likewise ordered to repair to Fort St George and join the Army under Sir Eyre Coote"

Dick and Grant do not appear to have received promotion even by Brevet And the grant of permanent promotion to Harrison for volunteering for active service, looks as if there was not much competition at the time for such employment

Harrison had been appointed in Bengal as Surgeon of the Royal Charlotte from 17th August 1778, and the Minutes of 2nd October 1779 order his confirmation in the service from He therefore reached the rank of Surgeon with only three and a half years, rapid promotion, certainly, but promotion was running very quickly at this time The officer next above him, James Steel, became Surgeon on 22nd November 1781, with less than four years' service, and the officer next below him, John Stewart, got the step on 20th October 1783, with under Harrison did not live long to five years' service enjoy the benefits of his promotion, he died on By that time he would 22nd December 1784 have become Surgeon in ordinary course, so all he got by his promotion was the rank and pay of Surgeon a few months earlier than he would otherwise have done

Surgeon John Laird, whose temporary promotion to Surgeon-Major has been mentioned above, received substantive promotion to that rank, out of his turn, a little later. The Minutes of 28th January 1785 record that Mr. John Laird is appointed to be Surgeon-Major of the First Brigade, vice Thomas, discharged, "in consideration of his meritorious services in the late war in the Carnatic." In this case, however, Laird had to wait till a vacancy in the superior rank occurred

Assistant-Surgeon Andrew Jukes, of the Bombay Service, was promoted to full Surgeon on 14th February 1806, at the request of the

Persian Ambassador, Muhammad Nabi Khan, for services to the Embassy. As Jukes was then the Senior Assistant-Surgeon in the Bombay Army, and as the next vacancy in the rank of Surgeon, which occurred in April, was absorbed, this special promotion made no difference to any one else, and merely gave Jukes the rank and pay of Surgeon some two months earlier than he would have got them in the ordinary course of events

### SOME MALARIAL PROBLEMS IN BENGAL

THE subjects discussed at the recent conference on malaria and sanitation at Madras were many and various as is evidenced by the coming publication of five volumes of Proceedings — Among the papers which we have read none attracted our notice more than one by Dr Bentley entitled "Some Problems presented by Malaria in Bengal" The subject is treated not from a professional or scientific point of view, but rather from the point of view of a statesman or economist

As, however, we believe Dr Bentley's article is liable to be misinterpreted and misunderstood, especially by the casual reader we propose here to consider certain matters raised by it

Dr Bentley states that the economic condition of a village is the main factor which determines a moderate or an excessive mortality among its inhabitants. He shows that in certain areas the population of certain villages has decreased, and that the land in them is no longer able to produce the crops of rice or jute that it was formerly able to do, and that as a consequence poverty and distress has in these areas increased and malaria is able to still further produce havoc amongst them

It is not difficult to realise the vicious circle, the natural process of silting up of the livers, decrease or loss of fertilising silt on the land around, decreased crops from the diminished fertility of the land, decreased profits, poverty, and malaria which attacks those rendered susceptible by distress and in its turn the malaria is increased by the neglect of cultivation and so on

No one can seriously deny such a vicious circle, but at a first reading one might well think that D<sub>1</sub> Bentley made these statements about large areas and that they were of general application in Bengal, a closer study, however, of the article shows that Dr Bentley had no such intention and that his remarks have but a limited applica-

tion, and apply only to such localities as have suffered or are suffering from dead or dying rivers and later in his article we find these areas mentioned as being found in certain districts of Central Bengal

We say that he has not sufficiently emphasised the limited application of his remarks, though he very clearly points out that it was in this way that Bengal has been created. The Ganges (and its tributaries) is "the mother of Bengal" "Nearly the whole of the country has been deposited from the waters of this mighty siltladen river, the process which gave birth to Bengal is still continuing at the present time,"

When a river has silted up the land on its banks no longer receives the fertilising silt deposited as it subsides, the Bengal cultivator too little realises the great need for adding manure the seed is sown as usual but repeated crops must necessarily in time impoverish the land, the crops themselves become less in value, poverty begins and increases, and malaria carries off the weakened inhabitants, and malaria itself is increased by the falling off in agriculture and the abandonment This is a process of nature of the land in this way that Bengal was made Drainage or other engineering schemes can effect but little against nature Under such encumstances and in such limited areas a decrease in the popula-If the people remain malaria tion is inevitable attacks them, if they inigrate the population thereby declines This process or cycle of processes continues till a state of equilibrium is reached where the number of the remaining inbabitants is exactly that which the land can Such a state of affairs is easily understood and has been faced by all races and countries since the world began

The rural inhabitants of Bengal are a stay at home people they but seldom emigrate and they consequently suffer where such operations of nature are in force. Dr. Bentley's remarks apply to such a transitional state of affairs and to such limited areas as we have above described. During all great natural changes people who cannot adapt themselves to the changing environment must necessarily suffer but even in such areas depopulation does not remain always it may be met by the immigration of a hardier race with fewer wants as for example in the lands of the dense abandoned jungles, which still surround the ruins of ancient and once populous cities

of Gour and Pandua, where a hardy race of Sonthali immigrants is cultivating lands, for some centuries abandoned to wild animals

Some facts which may be quoted from Mr L S O'Malley's Bengal Census Report shows that Di Bentley's remarks can only be applied to limited The census shows that in the areas or villages districts mentioned by Di Bentley the density of the population is high, ey, Rajshahi, 566, Nadia, 580, Jessore, 601, Murshidabad, 640, Fandpur, 824 persons per square mile, whereas the average density of all Bengal is only 551 persons to the square mile a figure however far higher than that of any country in Europe except Belgium and which are great manufactuing England. countries \*

Di Bentley refers to the well-known rise of prices in recent years. The cultivators have surely benefited by this rise in the price of their wares. The rise in price of rice and the greatly increased monetary return per area given by a jute crop has largely benefited the cultivator, but it cannot be expected that any land to which manure is not added will continue to produce crops, in such profitable profusion, a deterioration in the crops must follow and consequently distress or poverty, unless this is met by the only natural remedies, emigration or improved methods of agriculture

Such changes (says Di Bentley) 'might have been foreseen, but could not well be prevented" We may hope that the establishment of Agricultural Colleges may lead in time to better agricultural methods, and meantime emigration is the only other remedy, and the recent great development of mill and factory will surely help to solve the emigration difficulty, and so far the demand for labour by mills, factories and tea estates far exceeds the supply

We here commented thus at length on Di-Bentley's valuable article because we consider it open to misinterpretation in that he has not sufficiently emphasised the local and partial present application of his views. He has correctly described the conditions of a village in these areas of dead and dying rivers but his remarks might be taken by a casual reader to apply generally to Bengal, where on the contrary the peasants are marvellously prosperous as a whole,

<sup>\*</sup> See Mi O Malley's Census Report (p 10), for a very able discussion of this density question

and famine practically never is seen among them

Dr Bentley's picture is time in the limited sense we have stated, but it is painted in too lurid colours, and words like "depopulation," "starvation," "im" conjure up a total wrong view of the case

The areas described by Dr Bentley are in a state of natural transition, and all he means is that in some villages the land has become too impoverished (by the action of repeated cropping without manure, either natural silt or artificial manure) to support its former population and the vicious circle of destitution disease and depopulation will continue till the numbers are reduced to those which the land is able to support. The only remedies are emigration, improved methods of agriculture or possibly in some places the introduction of a hardier race with fewer wants and better able to adapt themselves to the changing environment

# Aurrent Topics

#### THE ACCELERATED PROMOTIONS

In our Service Notes we have referred to the noticeable feature in a recent gazette, viz, the promotion of ten Majors to Lieutenant-Colonel on completion of 19½ years' service. This is, of course, due to these officers having originally obtained 6 months' acceleration to major's rank. This is the first occasion in which the accelerated promotion system has operated in promotions to Lieutenant-Colonel, from now on it will continue to do so

Another feature, unique up to the present, in one respect, is presented by the batch of Captains of 27th June 1901 who have been accelerated. This batch of 10 officers supersedes the five remaining officers whose commissions are dated 29th January 1901, for the first time, acceleration not only benefits individuals as regards men of their own batch, but also as regards the unaccelerated of the batch above.

This peculiarity in the working of the rules will continue in future, not in the case of every set of promotions but whenever there is a less period than 6 months between two succeeding batches

For example, the remaining 14 men of 27th June 1901 will be promoted on 27th June 1913, and will not be superseded by any of the 29th January 1902 who happen to get 6 months' acceleration, as the latter will be promoted on 29th July 1913 But the unaccelerated men of the 29th January 1902 batch will be superseded

by the accelerated ones of the 26th July 1902 batch, as the latter will be promoted on 26th January 1914

Again the unaccelerated Captains of 26th July 1902 will be superseded by the accelerated ones of 1st September 1902

The argument is sometimes advanced that this system of supersession is unfair, and that men should only be advanced the number of days that will just prevent their going over men of the batch above. Now that the 16 years acceleration rule is in force, however, there is really little to complain of, practically every man has a fair chance of earning accelerated promotion.

#### EXAMINATIONS FOR PROMOTION - I M S

THE Government of India have approved the introduction of subject (d) (iii) (organization, administration and equipment) for Lieutenants, Indian Medical Service, for promotion to Captain, to embrace all Lieutenants whose commissions are dated 28th January 1911, or later, and others not fully qualified for promotion by 1st January 1914

2 The syllabus of the subject will be found in Appendix XI, King's Regulations, the paper will be the same as that set for other branches of the Army

3 Officers may be examined in this subject at the promotion examinations commencing from March 1913

4 The Government of India have also decided that Lieutenants, Indian Medical Service, may be allowed to appear for their promotion examinations on completion of one year's service.

5 The regulations will be amended in due course \*

#### THE AMORPHOUS CINCHONA ALKALOIDS

WE direct the attention of all interested in the quinine question and in the treatment of malainal fevers to the paper we publish in this issue by Major E E Waters, MB, MRCP, IMS, the Civil Surgeon of Hooghly

The amorphous circhona alkaloids have been hitherto considered more or less as a waste or bye-product of quinine manufacture, but their value has been for some time appreciated by missionary medical men in lidia

The supply of quinine available in the world is at present limited and likely to be so for some time, as except for the plantations possessed by the Government of India the world's supply is controlled by a body of merchants in Hamburgh, and the more that anti-malarial operations are taken up in tropical countries, the more will the demand for quinine increase and its price must necessarily rise

<sup>\*</sup> For rules of examinations to promotion, see Seton and Gould's Manual of I M. S., page 31

From this it follows that it has become vitally necessary to make the most use of the curchona now possessed by the Government of India

Major Waters shows that these amorphous alkaloids are of real value in malarial fevers, that the dose required is small and that the drug is cheap If therefore these amorphous alkaloids can largely replace quinine, the saving

of public money will be great

We therefore call the attention of our readers to these facts, and we may inform them that amorphous cinchona alkaloid is now obtainable either in powder or in tablet form (2 grain, 31 grain of 4 grain tablets) from the Superintendent, the Juvenile Jail, Alipore, Calcutta, at a price just over Rs 4 per lb We may add that the Superintendent of the Juvenile Jail in the year 1912 supplied no less than 512 ib of the amorphous alkalords chiefly to Mission Hospitals, and is ready to supply demands for the present year.

#### PRESENT DAY VIEWS ON TUBERCULOSIS

ALL those who wish to know the latest on the big subject of Tuberculosis are recommended to obtain a copy of the January Number of The Practitioner, which contains 380 pages on all aspects of that protean disease

The subject is introduced by an article by Sir T Clifford Allbutt We cannot attempt here to touch upon all the papers in this admirable special number, but we may mention some of the

views on a few points

Heredity, for instance, is but briefly mentioned, though surely Dr. Horder is right when he says that the existence of tuberculous families is one of the cardinal facts in clinical medicine Sii C Allbutt says he is glad to see the 'misleading metaphoi of 'soil' falling into disuse" We cannot agree with this, in these bacteriological days the seed which is in many cases everywhere present is thought more of than the 'soil' in which alone the seed can It may be that the metaphor is a bit mixed, for in agriculture it is the good and fertile soil that is desired, in medicine we desire the hard infertile and resistant soil, but the relative shares of soil and seed remain.

The routes of invasion by tubercle are yet much in dispute, writes Sir C Allbutt have 'milk advocates' and 'an advocates' cannot find the remark attributed to Di Cari that tuberculosis is prevalent in many a country "as in the East where there is no milk" where are such countries? It appears that abdominal and scrofulous lessons are due to the bovine type of the tubercle bacillus and the pulmonary cases to the human type Sn Clifford calls attention to the infinite mischief of Koch's declaration of the harmlessness of the bovine variety

By early diagnosis and by early treatment Dr. A Latham states that a cure may "pretty !

surely be brought about in at least 20 per cent of all cases" Not a very hopeful prognosis

The reader will naturally expect some pronouncement about the tuberculm panacea note, however, is discordant "Some are emphatically in favour of it, others are more cautious or more timid" The reaction is obtainable in normal persons and some think that its use is followed by an exacerbation or awakening of the focus, which, however, Dr Camac Wilkinson forcibly demes!

As for the use of the X-Rays in diagnosis we find Dr Lawson speaking with enthusiasm of then value, an expert interpreter is, however, Of the opsonin method, as a guide to diagnosis and treatment, one writer is confident, another not so much so Sn C Allbutt refers to the "ambiguities of the personal equation"

As regards treatment we need not here refer to the surgical articles by Sn P Gould and As regards use of tuberculin, Su Mr R Jones R Powell is cautious in his estimate, Di Priestly wains us against the wave of optimism about it, and there are still grave differences of opinion between those who press for the intense method and those who prefer the gradual "reactionless" method, and even the great supporter of tuberculin Di Camac Wilkinson seems to wain off the general practitioner and "thinks it can only succeed in the hands of men possessing special knowledge, special skill and special experience-" a not very consoling point of view, but it contains a useful warning to many

Sir Clifford throws a dash of cold water when he tells us that at Victoria Park of three classes of cases, those treated by ordinary methods, those by creasote inhalations and those by tuberculin the results were approximately

the same !

Not will the discussion on sanatorium treatment give us much hope Two and a half years' treatment is said to be necessary and that practically means it is possible for very few Consequently there is a tendency to look to sanatoria not for complete cures but "to educate the patient in the methods and reasons by which cure is to be completed i"

Other writers write of segregation of the incurable, but how? The "stuffing system" as the feeding of the Nordach system is inteverently termed is now condemned and laughed at! The true claims of Nordach are said to be truly enough,-" the close supervision the regulated exercise and absolute obedience to the medical ıuleı"

Nevertheless there is a strong consensus of opinion as the value of "a relatively large proportion of protein" in the food of the tubercu-We need not wonly about drugs-as Sn R Powell rather sadly says "it is for the incurable that drugs are most wanted"

Such résumés are valuable There are fashions in medicine as well as in millinery, and it is

good at times to take stock.

#### THE DESTRUCTION OF BED BUGS

THE Annals of Tropical Medicine (Vol. VI, No 4, December 30th, 1912) contain a useful article by Dr B Blacklock on the resistance of Cimex Lectularius to various reagents, which is worth noting in the view of the importance of these bugs in the spread of disease

This vile parasite in the choice of food prefers the blood of human beings They are rapid walkers, and soon reach the bed, but they can subsist without human blood for long

periods

It appears from Dr Blacklock's experiments that the most effective method of using powders was to sprinkle it over them, and the certainty with which a powder acts depends upon the fine subdivision of the powder, its digness and The action is mainly mechanical

 $\mathbf{D}_{\mathbf{l}}$ Blacklock draws the following con-

clusions

Cimai lectularius whether in the larval or adult stage is not readily killed by depriving it of human

It may thus remain alive and active for months in houses which have ceased to be inhabited

"3. Houses on being re occupied after being empty

for months may still be found infested with bugs

Bed bugs may transmit certain diseases from one human being to another Therefore, it is madvisable that bugs and human beings should occupy the same house

" 5 Human beings must be protected from the

attacks of bed bugs

There is no evidence that bed-bugs can be cleared out of a house by insecticide powders. Ex periment suggests that powders are of very limited utility

The same applies to liquid remedies

Gaseous substances present the best prospect of success

"9. Of such substances, sulphur dioxide is cheap and effective

"13 Sulphur dioxide gas under pressure for two minutes, kills with certainty all stages in the cycle of development of the bug, including the egg"

AFTER all this is not very helpful, for it is not easy to obtain the sulphur dioxide "under pressure "

#### THE PATHOGENIC PARASITE OF YELLOW FEVER

THE salient point in the Report of the 28th Expedition of the Liverpool School of Tropical Medicine is the reported discovery of the long missing pathogenic micro-organism of yellow fever This has been usually described as "invisible," "ultiamicioscopic," but Di H Seidelin who writes the report deliberately states that Paraplasma flavigenum was found in practically "all cases of yellow fever, in a number of suspicious cases and in two apparently healthy native children and it was not found in other I therefore consider it the febule diseases pathogenic parasite of yellow fever" description with illustrations is given of the parasite in the Yellow Fever Bureau Bulletin (Vol. II, No. 2, October 1912) The parasite probably belongs to the family Babesudæ, and resembles, but is different from the genus Babesia, which is found in Texas cattle fever and allied diseases of cattle Other points of interest brought out in Di Seidelin's report is the certain but rather exceptional existence of yellow fever in natives of Yucatan, &c, hitherto considered immune

So far experiments with the incriminated mosquitoes, stegomyia, have yielded only negative results and the question of the existence of other microbe carriers, which might explain how the intervals between outbreaks of yellow fever are bridged over is raised As Hudellet has said "It is reasonable to think that yellow fever infection exists in a form which is not known, but which is more resistant and less dependent on circumstances than the  $\mathit{very}$ fragile chain of conditions—Stegomyia—infected human organism—Stegomyra"

#### PLAGUE PREVENTION IN IRRAWADDY DIVISION

WE have received Capt S C Chuckerbutty's report on the Plague Preventive Scheme carried out in 1911-12 in the Irrawaddy Division of Buima

The report is full of interest and with certain modification follows the lines of Capt Biayne's drives noticed in a recent issue The results have certainly been satisfactory—there has been no plague in epidemic form in the year 1912 in Bassein, population, 37,000, three large towns Henzada, population, 27,000, and Myaungmya, population, 9,000

Rat destruction on a large scale was carried out by a huge staff under 4 Military Asst-Surgeons, 4 Sub-Asst Surgeons, and 4 Sub-Magistrates, and hand-in-hand with this went the demolition of insanitary buildings and impiovements to others. Particular attention was given to general sanitation and to the cleaning up of houses and their suitoundings

Rat "drives" were done twice in the year, the first starting well before the period when Rat drives due the usual epidemic was naturally need to be done with thoughtfulness and tact, and as so many houses in Buima have low plank floors, it is not possible to destroy the lats which exist under these floors without removing these planks This however has led to use of raised floors or to pucca rat-proof floors Capt Chuckerbutty sums at his measures as follows -

"The preventive measures adopted to check the various outbreaks were one or more of the following -

"(1) Drives-including thorough cleaning of houses,

"(2) Systematic trapping,

"(3) General sanitary improvement and improvements to houses, eating-houses, bakeries, and lodginghouses with a view to make them rattable and sanitary,

"(4) Demolition of insanitary houses and extensions which were found to be unfit for human habitation,

"(5) Inoculation, and

"(6) Evacuation

"Drives were carried out at nine different aleas in the district, inoculation at three places and evacuation at two During the course of the drives, special stress was laid on thorough cleaning of all the houses and cart loads of rubbish have been removed."

The Society of Tiopical Medicine (Transactions, Vol VI, No 2, December 1912), discussed a very interesting subject introduced in a useful paper by Dr W F. Law, of British Guiana There was a strong tendency to show the serious nature of ankylostomiasis and to explain how directly and indirectly it had great influence in bringing about a fatal result in other diseases and in lowering the working power of the labourer

Now we are strongly disposed to think that there is much exaggeration in this talk of ankylostomiasis In the first place, there is much confusion between ankylostome infection and ankylostome disease It is extremely difficult to define anky lostomiasis, and it is certainly absurd to label as such cases in which on a more or less careful examination of the stools, the ova or the worms themselves are discovered It is an undisputed fact that about 90 per cent of natives of Bengal and Assam harbour this worm, and what is almost amusing is that this fact was first discovered by Lt-Col E Dobson, IMS (1etd), in coolies collected and passed as "healthy" They were healthy and they were fit for labour, and if a cultivator or coolie was to be condemned as unfit for labour because he harboured a few or even many ankylostomes there would be an end to all cooly labour in many parts of India! Ankylostome infection and ankylostomiasis are not synonymous terms, and the sooner this is recognised, the sooner will a proper point of view be arrived at of the recent literature in countries out of India has been vitiated by this confusion

The December issue (Vol. II, Pt 1) of the Journal of the London School of Tropical Medicine is an excellent number and contains papers by members of the staff and others on a new species of Anopheles, the Anophelines of Malaya, Leishmania and bugs, amæbic dysentery in cats, notes on human trypanosomiasis, helmenthological observations in Nyasaland, the bacteriology of leprosy and rain as a drinking water-supply. In addition there are extracts from various articles in other publications and accompanying this issue is a very full bibliography of guinea-worm disease.

THE Medical Times and Circular gives the following note --

According to statistics carefully compiled by Dr Helme, of Geneva, the total number of doctors in Furopean countries is 160,880, divided up as follows —

Fingland, 28,920 = 7.8 per 1,000 inhabitants Germany, 22,500 = 4.3 " "
Russia, 21,400 = 2 " "
France, 19,800 = 5.1 "

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Italy, 18,240 = 56 per 1,000 inhabitants
Spain, 13,700 = 75 ,, ,,
Austria, 10,400 = 25 , ,, ,,
Switz'd, 1,720 = 52 ,, ,,
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As regards the capitals, Brussels takes the lead with 241 doctors per 10,000 inhabitants, Madrid comes second with 209, then Rome (148), followed by Vienna (14), Berlin (132), London (128), St Petersburg (12), Paris (111), Copenhagen (9)

Major R McCarrison, M D., I M S., delivered his Milioy Lectures before the Royal College of Physicians in January, and they are reported fully in the Lancet The subject is The Etiology of Endemic Goitie The lectures have been published in book-form (Bale, Sons & Danielsson)

As we go to press the useful little book on Clinical Methods by Major G T Budwood, M.D., IMS, has just appeared (Thacker, Spink & Co Price, 28 8d)

# Reviews.

The Protein Element in Nutrition -By Major D. McCay, IMS, MB London, Ed Annold and Longmans, Green & Co Price, 10s 6d

Major McCay's work on metabolism is so well known to our readers in India as to need but little introduction from us. There are few physiologists who have had the good fortune to be able to carry out on such a big scale an elaborate series of experiments of such importance, consequently Major McCay's work at once takes a high place in the history of physiological research into the metabolism of human food

Many of our readers will have read the two large Scientific Memoirs (34 and 37) in which Major McCay has given the details of his long series of experiments, but all will welcome this compact and accurate monograph into which he has put all his work, and in which he is able to discuss the subject in all its bearings.

able to discuss the subject in all its bearings.

The "splendid opportunities" to which Di Leonard Hill, the General Editor of the series, alludes, have indeed been "utilised to the fullest advantage," and the consequence is a book clear and well written with clear defined views running throughout It is well known that Major McCay's work leads him to conclusions in direct opposition to those of Chittenden, and we specially commend the chapter on low protein diets in which this is discussed in a masterly manner. Chittenden is treated becomingly and with a due regard to his great reputation and good work, but he is emphatically cornered before even Major McCay refers to a statement which (I M G., July, 1912, p 280) we took from the Transvaal Medical Journal to the effect that

Prof Chittenden was cheated by the men who professed to be undergoing his experiments. It was a cruel blow to the great Scientist and all must sympathise with him, but it is obvious that such action invalidated his results and leaves the matter in statu ante Chittenden.

Major McCay deals fully with the dietaries of many tribes and races in India, and to the full in our opinion demonstrates the racial as well as personal importance of a high level of protein in the diet

We strongly commend this admirable monograph to our readers. It is a subject which all medical men should understand, and it is here presented in an accurate up-to-date and attractive manner

Labour Room Clinics—By Capt Green Armytage, I m s (Calcutta Thacker, Spink & Co Price, 1s 8d.)

This is an excellent little handbook, contains in a concise and terse form an enormous amount of information on the principles of obstetric practice. It consists of 20 lectures or they are rather notes of lectures than the lectures themselves. They cannot fail to be of use to the student of midwifery and gynæcology. The teaching is accurate. The book is interleaved for notes. In every respect it is a useful student's book and can be strongly recommended.

# The Carrier Problem in Infectious Diseases — Di J C G LEDINGHAM and Di J A ARK-WRIGHT

This volume forms one of the series of the International Medical Monographs It treats of an extremely important subject, and all those who have to deal with questions in preventive medicine in India would do well to read it opening paragraph of the introduction may be quotea as giving a short and clear summary of the positon of this problem at the present time The authors state -"The part played by human carriers in the spread of infectious disease is on all sides gaining wider recognition, and the problem of dealing effectively with these sources of infection has become one of prime importance to the administrator of public health primarily to the labours of the bacteriologist that our present knowledge of the carrier status is due, and although on the epidemiological side a few dissentient voices have been raised in protest against the attachment of undue importance to the human carrier, the great majority of public health administrators have welcomed the new knowledge and are eagerly calling on bacteriologists to give them a further lead is recognised that a human carrier who has been proved to be a source of infection cannot be dealt with in the same diastic fashion as an manimate and probably innocent fomes, and accordingly the services of the bacteriologist and experimental pathologist are being requisitioned to find a way out of this new impasse"

The carrier problem is considered in regard to enteric fever, paratyphoid fever, diphtheria, epidemic cerebro-spinal meningitis, dysentery, and cholera. The section on enteric fever is written by Ledingham, and has been to a large extent reproduced from his excellent report on the subject to the Local Government Board, he also writes the sections on paratyphoid fever and epidemic cerebro-spinal meningitis. Arkwright is responsible for the remaining chapters.

In India the importance of the carrier problem in relation to the prevention of disease was early recognised, and the Government of India about seven years ago (1905) deputed an officer (Major E D W Greig, IMS) to study the question in Germany with special reference to the prevention of enteric fever in India In the present volume the authors deal fully with the results of the investigations in India on the carrier question in enteric fever (Greig and Semple), and also the research work on paratyphoid fever as a result of which the cause of the fever was determined for the first time in India by accurate bacteriological investigation The subsequent work in India on paratyphoid fever is also discussed, and it is of interest to note the views of the authors on the occurnence of the two varieties (A and B) of B, paratyphosus, they say -"The A bacıllus alone would, according to Firth, play the causative iôle in paratyphoid fever in India, and he would further suggest that in other countries the B variety may not be the cause of genuine paratyphoid fever, but only of acute gastro-It may be said at once there is no evidence in favour of this latter extreme view"

It is not possible within the limits of a review to give an adequate idea of all the valuable material contained in this volume. The authors have placed all workers in preventive medicine under a debt of gratitude for their excellent presentation of this most important problem.

#### Collected Papers of the Research Department, University College Hospital Medical School (University of London) Vol II

University College has always been an active centre in the field of research, and the present volume shows that this activity is well maintain-The Director of the Research Department The papers are twentyis Dr Chailes Bolton two in number, and are reprints from the various journals in which they were originally This system of publication is a very published useful one, because it enables the workers to publish without delay the results of their investigations in journals which have a wide circulation, and the reprints at a later date are bound up in a convenient volume which forms the report of the department

Dr Thomas Lewis contributes a number of important papers in which he records his investigations on problems connected with the

heart As a Bert Memorial Research Fellow he carried out an investigation on the origin of the electric oscillations and the direction of contraction of the ventricle in instances of complete inegularity of the heart (amicular fibrillation) At the Tropical Research Laboratory, Khartoum, Dr Stevenson made an interesting enquiry regarding coccidiosis of the intestine in the goat. He is doubtful of the pathogenicity of the coccidia. He had not enough data to definitely place the organism. He also contributes notes on the "Protozoa Parasitic in the Bufo regularis in Khartoum" and on "Peculiar Bodies found in the intestinal lymphoid follicles of an Egyptian". The illustrations of his papers are good

"The functional and histological effects of intraneural and intraganglionic injections of alcohol" have been studied by Di Otto May

"The control of the supra-renal glands by the splanchmic nerves" forms the subject of a research by Dr Elliott

Di Charles Bolton discusses the "Origin of chronic ulcer of the stomach in the acute variety of the disease"

The volume forms an important addition to the literature of medical research

The Nutrition of the Infants — By RALPH VIN-CFVT, MD Baillière, Tindall & Cox, 4th Edition, pp 334

THE fact that this work has reached its fourth edition is sufficient testimony perhaps of its appreciation The present edition has been largely re-written, and the results of a wide practical experience as regards infantfeeding have been summarised Di Vincent is evidently a staunch supporter of the Rotch method of rearing infants, but this is a method which demands many technicalities and much apparatus, and we note that despite his predilection for this method Di Vincent lays special stress on what is termed the fat-whey method of feeding debilitated infants whey is prepared according to simple directions given to each paient and then only sufficient milk is added to bring the case in over in the whey up to the requisite amount A section of the book deals well with the bacteriology of milk and there are some excellent micropho-From the point of view of the general practitioner, we think that the last five chapters which deal with semvy, nekets and intestinal toxemia are the most instructive

Outlines of Medical Jurisprudence and Treatment of Poisoning — By RAVES CHANDRA RAY, LM and s, the Hare Pharmacy, Calcutta, 2nd Ed Price, 4s

We expressed a very favourable opinion on the first edition of this Medical Jurispiudence, and we have no hesitation in saying that the second enlarged and revised edition is an advance in every way on its predecessor. It is a very compressed compilation, and in short space the

author has 'boiled down' accurately the contents of many pages. The chapter on insanity, the chapters on sexual matters, criminal abortion, etc., are very well done and complete. The appendices are very useful. It is, on the whole, a wonderfully compact, exhaustive and accurate synopsis of a big and important subject and should prove very useful to students preparing for examination and to pleaders and others who wish to work up the medico-legal points of a case.

Vaccine Therapy -By R W ALLEN, 4th Edition

In the preface to this edition the author states that "the great developments and extensions which have been made in vaccine therapy since the appearance of the third edition in 1910 have appeared to justify the attempt of so altering the scheme of this work as to convert it into a systematic account of the applications of vaccine treatment to the bacterial diseases of the various parts of the body" Consequently the book has been completely re-written for the present edition It is divided into twelve chapters The first chapter deals with the antibodies, toxin and antitoxin, agglutinins, lysins, opsinins The nature, source and functions of these are discussed. In the next lysins, opsinins chapter the value of opsonic index estimations in the diagnosis, prognosis, and treatment is considered In the two following chapters the method of preparation and administration of the vaccine, and the nationale of vaccine treatment and causes of failure are fully dealt In chapters 5 to 12 the application of vaccine therapy in the diseases of the various systems is set forth in detail

The opinion of the author in regard to the value of the opsonic index as a guide in vaccine therapy may be gleaned from the following (page 81)—"The impression will, no doubt, have been received that I regard the opsonic index as a somewhat unpractical and unsatisfactory guide to the administration of vaccine This is, in fact, the view I do hold"

A clinical classification of bacillary dysentery is given by the author—the signs stated would be furnished by conditions quite distinct from this disease, eq, amoebic dysentery, for the treatment of which vaccine therapy is, of course, not appropriate—Scurvy is placed amongst the diseases of the circulation, and the author—considers that the connection between this affection and infective conditions of the gums—and gastro-intestinal tract is becoming increasingly clearer. The recent work of Axel Holst, on the other hand, points strongly to scurvy being caused by the absence of certain special constituents from the dietary.

In the book much information on the subject has been brought together and workers in vaccine therapy will find it convenient to refer to

The Snakes of South Africa; Their Venom and the Treatment of Snake bite.—By F. W Fitzsimons Maskew Miller, Cape Town, and Longmans, Gieen & Co, London. Price, 12s. 6d

The book has been written with a view to correcting many of the popular misconceptions concerning snakes and snake-poisoning. The first half of the work gives a systematic account of the various species found in South Africa, and includes many interesting observations on their habits. The author has also included a series of 'keys' for the identification of the different genera and species, these have been compiled by no less an authority than Di Boulanger of the British Museum, and should enable anyone acquainted with the terminology to correctly determine any known species.

The latter part of the book deals with the methods of treatment to be adopted in cases of snake-poisoning and, in view of certain recent work done in this country, it is interesting to note that the author from his own experiments has convinced himself of the efficacy of potassium permanganate, provided it be applied at once. In Chapter IX the author gives a brief account of the anatomy and physiology of the human body, much of this has little or no bearing on the subject, nor is he altogether accurate in several of his statements.

His advice on deep breathing and the care of children's teeth is altogether out of place in

a work purporting to deal with snakes

The text is profusely illustrated throughout and many of the reproductions from the author's own photographs are excellent, but we condole with him on the treatment that his only coloured plate has received at the printers' hands

The book is an interesting one and should prove of considerable value to those who wish to make a study of the snakes of that country, but, apart from its general interest, it will be of little use to Zoologists or others resident in India

### SPECIAL ARTICLE.

# TRACHOMA A CHAPTER IN MILITARY MEDICINE

The modern history of Tiachoma in Europe dates from the time of the Napoleonic Campaigns in Egypt The English and French troops engaged in those campaigns suffered severely from an epidemic form of eye disease, which, on their return, they disseminated, not only in the garrison towns in which they were quartered, but also through the civil population of their native countries. The name commonly applied to it at the time, the "Egyptian Ophthalmia," sufficiently indicates its origin

Napoleon landed in Egypt on July 1st, 1798, with an army of 35,000 men Within three weeks his troops were attacked by foes more deadly and

more obstinate than those they had already faced and overthrown on the battlefield dysentery, scurvy and sun-stroke accounted for more deaths, "but Trachoma, the Egyptian Ophthalmia, was especially fatal to their effi-ciency as a fighting force " (Boldt, p 9) The spread with extraordinary rapidity through the army, and several special ophthalmic hospitals had to be erected, through which thousands of patients were passed much of the disease appears to have been of a mild character, and the French Surgeons, as we shall see, claimed remarkable success in their treatment of it, it is unquestionable that much permanent loss of sight resulted Exact figures are difficult to obtain, but Sii James McGregor in his "Medical Sketches" writes that the French, it was said, sent home from Egypt to France 1,000 blind men " (page 147).

Larrey, in his "Memoires," states that in the latter months of 1798 "almost every one" suffered, while in 1799 the army was almost exempt from the disease. This he attributes to the haidships and desert marches of the former period, chiefly to the lack of overcoats and sufficient warm covering for night bivouacs. After the defeat of March 21st, 1801, the labours of entrenching, combined with night chills, augmented by the flooding of a neighbouring lake, made the disease again very prevalent. "in the space of two and-a-half months more than 3,000 men

passed through hospital" (p 218)

His opinion as to the cause of the epidemic is "La chaleur found in the following words brûlante du jour, la réfraction des rayons du soleil par la blancheur des corps répandus sur le sol de l'Egypte, ce qui fatigue et irrite les parties sensibles de l'oeil, l'usage immodéré des liqueurs spiritueuses et des femmes, la poussière entraînée par l'air, laquelle s'engage dans l'intérieur des paupières et détermine sur le globe une plus ou moins grande irritation, surtout la suppression de la transpiration coutenaré par le passage subit du chaud au froid, l'humidaté et la fraîcheur des nurts pour les militaires qui bivouaquent, telles sont les principales causes de l'ophthalmie'' (p. 208)
In this opinion he is supported by Assahmi,

In this opinion he is supported by Assami, Bruant, Savaresi, other French Surgeons, not one of whom seems to have contemplated the possibility of the condition being a contagious one, propagated by contact, and social and domestic

intercourse

The English troops suffered as severely as the French At Ghizeh and elsewhere several large hospitals were established for the treatment of ophthalmia, and McGregor records that from those regiments alone which joined the Expedition from India no less than fifty men were invalided home with blindness (Medical Sketches, p. 147)

The disease not only raged amongst the troops in Egypt, but was carried by them to the various stations touched at on their way home, and spread with alarming rapidity in the barracks

and garrison towns of England, Scotland and Ireland, and thence to the civil population disease thus suddenly and prominently brought under the notice of English surgeons was studied by them with the most observant and painstaking care, and they "were undeniably the first to draw attention to the fact that Egyptian Ophthalmia is contagious and produces quite specific tissue changes in the conjunctiva' (Boldt, 11)

The credit of first elaborating a proof of the doctrine of contagiousness undoubtedly belongs to Arthur Edmonston, who, in 1802, published a pamphlet entitled, "An account of the Ophthalmia in the 2nd Regiment of Argyllshire Fencibles " this he incorporated in his " Treatise on the Varieties and Consequences of Ophthal-

mia '' (Edinburgh, 1806)

His argument rests largely on the facts relating to the Argyllshire Fencibles The regiment was embarked at Gibraltar on January 29th, 1802, "in a healthy state" on board the troopship Delft, which had brought the Guards from Egypt The latter were transhipped there on account of "the sickly state of the Delft," the prevailing diseases on board being fever and ophthalmia When the Fencibles were put on board she had lain for two months at Gibialtar and during that period "was frequently washed and fumigated" It is particularly to be noted, however, that one of the heutenants of the ship "had lost the sight of an eye in Egypt from Ophthalmia and at that time laboured under the disease, " also that though new bedding was provided, "the hammocks in which they lay, except a few appropriated for the use of the sick, had all been occupied by the Guards'' The Delft arrived at Spithead, February 21st, and lay in quarantine for seven days, the troops disembarking on the 28th

'One case of Ophthalmia occurred ten days, and other cases seven days before the landing of the regiment 'During the next ten days twentyone cases occurred, and up to the end of July, when the regiment was disbanded, "several hundred individuals had been seized with it"

After discussing all possible and reputed causes, Edmonston rejects them all in favour of "the operation of a specific contagion imported from

Other English observers, besides Edmonston, had been impressed with the evidence in favour of the presence of a contagium vivum for example Sir James McGiegor who does not seem to have seen Edmonston's pamphlet, in his

Medical Sketches of the Expedition to Egypt from India' published in 1804 discusses the possible contagiousness of Ophthalmia and remarks "so singular an opinion I would hesitate to offer on lender grounds (p 148)

The most interesting and important observations of that period however were undoubtedly those of John Vetch, who, in 1807, published In account of the Ophthalmia which has appeared in England since the return of the British

Army from Egypt," and later in his "Practical Treatise on the Diseases of the Eye'' (London, 1820) dealt fully with the question in all its aspects While giving Edmonston the credit of having first pointed out the contagiousness of the Eyptian Ophthalmia, he claims that he was the first to prove that "the communication of the disease was exclusively produced by the application of the diseased from the eyes of the diseased to those of the healthy ' (Treatise, p 179) His conclusions were based chiefly on the facts relating to the 2nd Battalion of the 52nd Regiment, the history of which as related by himself is as

The battahon was formed in November 1804 at Bambury in Oxfordshire by a draught of men and officers from the 1st Battalion It moved to Newbury in Berkshiie, where it received about 80 recruits, chiefly from the Army of Reserve Thence it marched to Hythe, where on June 9th, 1805, it was joined by 500 volunteers from the The first case of Ophthalmia oc-Irish Militia curred about July 14th, and about a month later five more men were affected "These cases did not attract attention as presenting anything in appearance different from Ophthalmia arising from the usual exciting causes, excepting the little benefit they derived from the mode of treatment resorted to, and the length of time to which they were protracted " (Account, p 7) The first violent case occurred on August 30th, and then the disease spread rapidly, so much so that from that time up to August of the following year 636 cases occurred out of a total strength of somewhat over 700 50 men were dismissed with the loss of sight in both eyes, 40 with that of one

On investigation, Vetch ascertained that the regiments which had returned from Egypt to Iteland had been quartered along with the militia and "the infection appears, from such evidence as I have been able to obtain, to have been communicated to them '' (Treatise, p 181) It was from militia regiments in which Ophthalmia had prevailed in Ireland that the draughts were taken for the 52nd, and on enquiry Vetch found that the men first afflicted in the latter had formerly suffered in Ireland (Account, p 6) The long period which elapsed between the return of the troops from Egypt and the breaking out of the disease in the regiment in question is explained by the fact, the anatomical basis of which Vetch alone, amongst early writers, seems clearly to have grasped, that "long after the eye seems to have recovered its natural and healthy appearance, the complaint nevertheless exists, and is liable at all times to a renewal of its infective quality

If in a single case a renovation of the infectious discharge takes place the crowded state of soldier in barracks, and the free intercourse subsisting among men so situated, render its communication almost a necessity " (Treatise,

"Many men who remained free from the disease, after it had affected all the others in the 100ms to which they belonged, were in the habit of 1ather allowing themselves to 1emain duty than make use of the barrack towel, and always took an opportunity of washing at such a distance as to prevent the possibility of local contammation ' (Account, pp 1, 11, 12)

We turn now to a consideration of the question What really was Egyptian Ophthalmia Was it a single disease, or a number of diseases not sufficiently differentiated by the observers ? If the former, was it Trachoma i If the latter, What part did Tiachoma play in it? Though no answer can be given to these questions with positive assurance, a study of contemporary records sheds enough light on the subject to afford a reasonable degree of certainty Several facts stand out clearly There can be no doubt, for example. that the disorder was epidemic in nature even the French physicians acknowledge that Again, it is clear that in severity it was by no means uniform, and the printed accounts reveal considerable differences as regards symptoms, course, sequelæ and results of treatment

That many of the cases were mild in character, short-lived in duration, and almost innocuous as regards consequences, seems evident from the success in treatment obtained Thus Lairey, after giving in detail the measures adopted by himself, remarks "il en est résulté que, sur trois mille et quelques ophthalmies, il n'y en a pas en un seul qui ait peidu la vue '' Assalini claims a similar result in over 2,000 patients who passed through his hands, and says that, after his régimé had been adopted in the English hospitals, equally good results were obtained in them

Edmonston, again, records that of the several hundred cases which occurred in the Argyllshire Fencibles '' in not a single instance was it fatal to vision '' (Treatise, p 23)

We may take it, then, as sufficiently proved that one element at least in "the Egyptian Ophthalmia" was an epidemic catairhal conjunctivitis, oiiginated perhaps by climatic conditions, propagated by contact, excessive clowding together of men, yielding readily to treatment, and in most cases doing little permanent injury to the eye

This cannot, however, by itself explain all the phenomena Something else much more serious This is evidenced by the large was also at work amount of blindness, absolute or partial, that resulted

Moleovel, many of the symptoms described by the authors of the time are much more serious than those found in catairhal conditions consideration of these is so strongly suggestive of gonoirheal conjunctivitis that we cannot avoid the conclusion that that infection played a very large part in the disease Vetch lays great stress on the purulency of the discharge as a diagnostic "The symptom," he says, "which above all others is characteristic of the disease is the formation of a purulent matter," and this discharge, he adds, "stained the linen of the patient in the same way as the matter from gonor-

thea'' (Account, pp 32, 53) Both he and Edmonston, however, maintained that the two conditions were totally distinct and could be differentrated clinically Vetch maintained that they "differed essentially, both in symptoms and termination 'Edmonston remarks that "the two affections have no kind of similarity," though the distinguishing signs as he describes them are not very convincing in gonortheal Ophthalmia the discharge is described as "from its commencement thick in its consistence of a greenish colour exactly resembling the ichor of the urethia," while that in Egyptian Ophthalmia "comes on rather gradually, is for several days thin and pale colour-The other distinguishing feature noted is that in the gonoirheal condition the loss of sight occurs early, in the other it is "the effect only of a long continued disease" Perforating ulcers and rupture of cornea, often with total destruction of the globe, are mentioned by all the writers as common occurrences, points which at once rule many of the Egyptian cases into the gonoirheal

category

It should be noted in this connection that the connection between uiethial gonorrhea and gonoirhœal Ophthalmia was by no means understood at that period Both the writers referred to, for example, are firmly convinced that the eye cannot be infected from unethial discharge in the same person, though the eye of another person may be infected both distinguish clinically a gonoitheal Ophthalmia contracted from infection from another person, from that occurring in the same person due to suppression of the urethral discharge, Vetch relates some metastasis or sympathy experiments made by applying the discharge from eyes affected with Egyptian Ophthalmia to the urethiæ of the same persons with negative results, and these he considers as corroborative of his views regarding the immunity of the eyes from the gonorrheal discharge of the same person In one case, however, the discharge was applied to another person with the result that "purulent inflammation commenced in 36 hours afterwards, and became, with the addition of more tumefaction of the glans pems than usually occurs in violent gonoithæa, a very severe attack of that di-, sease" (Treatise, p 242)—an example we may employ to prove the fact that some cases of Egyptian Ophthalmia weie gonorrhœal

Lairey suggested the dependence of Egyptian Ophthalmia on a gonoirhœal infection, attributing it, however, not to infection, but to a sudden suppression of the urethral discharge, of which he actually recommends the re-establishment by moculating a new gonorihœa or injecting an alkaline lotion, "la quelle peut supplier a l'inoculaalkaline lotion, 'tion naturelle'

James Ware, in his "Chirurgical Observations relative to the Eye" (2nd Edit, 1805), speaks of having seen gonorrhead ophthalmia in persons "entucly free of any venereal taint" and adds "The Ophthalmia that deprived in a footnote of their sight a considerable number of our brave soldiers in Egypt during the campaign in 1801, and which is said to be endemic in that country, appears to have been of this nature' (p 31)

Lastly we find Mackenzie in his 'Practical

Lastly we find Mackenzie in his 'Practical Treatise on the Diseases of the Eye' (4th Ed) so impressed with the great resemblance between the two diseases as to state that the 'symptoms of gonorrheal Ophthalmia by inoculation bear so close a resemblance to those of the Egyptian Ophthalmia, that it is unnecessary to detail them' As to diagnosis, he says that 'there are no marks which can be absolutely depended on, by which to distinguish gonorrheal Ophthalmia, produce by inoculation, from the Egyptian or contagious Ophthalmia,' and as to treatment that it 'ought to be exactly the same as in the Egyptian Ophthalmia'.

That a gonorrheal infection played its part in the disease in question seems abundantly clear

It now remains to enquire into the grounds of the common belief in the connection between the

Egyptian Ophthalmia and Trachoma

The most obvious feature of Trachoma, as we see it now, is the presence of "gianulations" on the mucous membranes of the lids, and it is with not a little surprise that one seeks in vain through the contemporary authors, with one notable exception, for any description of what seems so essential and easily noted a fact The exception is John Vetch, clarum et venerabile nomen m the history of Trachoma After describing the early inflammatory symptoms, he points out that when the swelling of the lids has somewhat subsided and examination is possible, the inner surface "over its whole extent presents the appearance of granulations," a term the use of which in this connection we owe to him He notes that this condition is more marked in the upper but more persistent in the lower lid, and also that the "adnata" of the globe "presents an appearance very similar to the florid red granulations of the palpebræ, disposed in a variety of folds and doublings, resembling more the valvulæ conniventes of the small intestine injected with vermilion than any thing else to which I can compare it ' (Account pp 54 56) This condition of the lids he says in some cases "disappears rapidly and of itself" (Treatise p 202) while in others instead of subsiding it acquires 'either by the operation of new sources of nutation or from a morbid obstmact in the part itself a farther increase of size so as to produce a rough, scabrous or granulated surface with a secretion of purulent matter" a condition often leading to opaque cornea " (pannus op av p 67) He points out that the granulations when cut away are reproduced and that the opacity of the cornea if once established, is not removed by the complete cicatrisation of the granular condition He also clearly saw the connection between the anatomical condition of the hds and the hability to relapses 'No treatment can prevent relapses from taking place. As long as the liming of the pulpebræ continu s villous this accident is liable to occur with all the severity

of the original attacks " (or cit, pp 217, 218) He insists strongly on the danger to society of convalescents being allowed perfect freedom of movement, and emphasises the duty in regiments and other bodies of men of daily inspection of all the apparently healthy By attention to these facts he claims that he had prevented the multiplication of the disease "to an incalculable extent" He punts a coloured engraving of the granular condition of the lower lid "to impress the importance of this stage of the disease more effectually on the minds of others "and adds that in regimental practice the disease was seldom suspected to exist unless the eye itself was either as ied as the patient's coat or over-flowing with matter '' (op cit, p 225)

No clearer proof of the presence of Trachoma in the Egyptian Ophthalma could be desired

What proportion of the cases was Trachomatous it is now quite impossible to ascertain the probability is that the various conditions we have discussed were mingled in proportions varying at

different times and in different places

As is said in the Report of a Special Medical Board appointed by the Commander-in-Chief to consider the subject in 1810—"The purulent Ophthalmia prevails at different times, and in different places, with very different degrees of malignity and even in the same place and at the same time, some persons suffer under the most violent symptom of the disorder, whilst others have it in a comparatively mild degree"

The Egyptian Ophthalmia continued, for many years after its introduction into Britain, to cause havoc in the garisons scattered over the country In 1816, we learn from Patrick Macgiegor that no less than 2,317 men "weie a buiden upon the public from blindness in consequence of Ophthalmia," that number excluding those who had lost the sight of only one eye Vetch records that in the summer of 1808, 900 cases passed through the Ophthalma hospitals, gathered from more than For more than a generation the disease continued to be a scourge of military life The history of Hygiene, and notably of Military Hygiene, can display many triumphs, but few chapters reveal so happy and dramatic a change of scene as that whose early pages contain the pictures of devastation and disaster caused by " Oph-The annual Health Returns of the thalmia Aimy even of the garrisons stationed in Egypt and India, could probably be searched in vain to discover any mention of the heading once responsible for the terrible losses indicated in the quotations given above The part played by British Army Surgeons in the history of Trachoma is one of which their successors of the present day may well be proud

How acute the problem still is in several of the Continental Armies may be read at large in Boldt's excellent monograph on Trachoma

H F LECHMERE TAYLOR, MD,

# Coppespondence

#### "FLAMING" IN PREVENTION OF PLAGUE AND KALA-AZAR

To the Editor of "THE INDIAN MEDICAL GAZLTTE"

SIR,-In 1899, with reference to plague prevention as then sig.—In 1899, with reference to plague prevention as then understood, I made experiments as to disinfection of floors "by flaming" Cylinders of compressed petroleum gas were employed, and, with the aid of the late Mr Phipps of the Loco Dept, Madras Railway, and Messrs Mansfield and Sons (now of Calcutta), at the end of flexible tubes—long enough to allow the adjunct apparatus to be placed outside houses the interviews of thick was the interviews of the control of the houses the interiors of which were to be treated-very power ful blue flame jets under forced are pressure were arranged, so as to apply heat by a motion as if painting surfaces simple bacteriological experiments as to numbers of colonies found on earthen floors before and after treatment showed that it was effective, but that there was little in favour of it against solutions of perchloride of mercury—as shown by Marsh's experiments in Bombay—whilst the time consumed was greater. The subject was therefore abandoned—although it was considered cetter is parribus a dry method of disinfection would be adventigating under many curenteeses. disinfection would be advantageous under many circumstaces, and more likely to be popular By 1905, however, there were in the market more readily portable machines, employ ing compressed an direct on kerosine oil These were fitted with long flexible tubes, having at the end jets for blue flames primarily meant for biazing purposes. One known as the "Lucal Heater" gave a firme two feet long and six inches broad. There was also available a cheap and easily portable hand lamp known as the "Petrolia blowlamp,

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Yours faithfully, W G KING, CIE, IMS (RET)

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SIR, -In my letter which has just appeared in the current issue of your esteemed journal a scheme for re arranging the cadre of our service was propounded, but I sincerly regret an omission was inadvertently made, which requires to be published in the early issue of your Gazette with a view to bring home the suggestion to the unanimous concurrence of my biethren and to prevent misconstituction

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I remain, Sir,

Your most obedient servant,

SATKARI GANGULY,

Relieving Sub Assistant Surgeon, E B S Ry, Broad Gauge Section

# "AN ANSWER TO THE QUERY UNDER DATE NOVEMBER 12"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In my humble opinion it is imperative upon a medical

attendant to give intimation to the police irrespective of the question of recovery or otherwise of the victim from any kind of poisoning for the following reasons

I in the first place, it must be admitted on all hands that there is every strong probability may certainty of such an event in question, being treated, from a legal standpoint, as an unnatural act, be it accidental, suicidal or homicidal, unless and until it is proved to the contrary in a court of law

2 Secondly, the law which is regarded as binding upon a medical attendant that he should, in the event of death,

communicate to the police, the news of such an occurrence, is, to my mind, equally go either before or after recovery, with the same individual with reference to the same in view with the same individual with reference to the same in view of the fact if it being purely a matter affecting life and death. In such cases it is therefore a wise policy to err always on the safe side. Lastly, as there is nothing harmful to the medical attendant or take place in case he divulges such news to the police nor such a procedure a blamable one when viewed in the light of law and truth it strikes me one when viewed in the light of law and truth it strikes me that to give information to the police about the matter in question is a sine qua non

B S ANNASWAMI IYER, LMS, Sub Assistant Surgeon, Kanı

### INFORMATION IN POISONING CASES

To the Editor of "THE INDIAN MEDICAL GAZETTE"

Sir,—In compliance of an enquiry made by "M B" in the columns or *Indian Medical Gazette* for December last, I beg to state that medical man when attending on a suspected case of poisoning is bound to inform the police at once He has to keep a note of the symptoms observed, treatment adopted by him, and will preserve the vomit, etc. He is also to keep a note of the time at which he received the call, the name of the informant, and circumstances under which he found the patient on his arrival. These notes will help him in case legal steps are taken against the man

> Yours obediently, LALA MAHABIR PERSHAD, Sub Assistant Surgeon, Tikari Raj Dispensary

### THERAPEUTIC NOTICES

Wh have received specimens of a substance called VI QUININE, which we are informed is simply quinine rendered tasteless. We would be more convinced if we saw an analysis of the powder. The Calcutta agent is Mr. A. C. Bisharad, Bow Bazar, Calcutta.

THE well known firm of W WAISON & CO, LD, X Ray and Electro-Medical Apparatus makers, have moved from High Holborn to 184, Great Portland, threet, W, London Then show rooms there are well worth a visit

WF have received specimens of PNEUMOSAN (Pneumosan Chemische Fabrik, 157, Great Poitland Street, W, London) It is an amyl thic trimethylamine compound, and has an enormous number of testimonials in its favour in the treat ment of all types of tuberculosis

THE OD Chemical Co of New York, send us samples of SANMFTTO, which is recognised to be a standard remedy in genito-urmary troubles. The firm has numerous Agents in Bombay and Calcutta, Madras and other towns in India

In thy road medication, the dose of thy road gland has usually In this ioid medication, the dose of this roid gland has usually been regarded as 3 to 10 gis, and is so given in the majority of books on the subject. Recently, however, certain authorities have stated that as the result of extensive clinical trials they have found doses of gr. 1/10 to gr. 1 equally satisfactory. To provide for this new system of dosage two additional strengths—gr. 1/10 and gr. 4—of 'Tabloid' Thyroid Gland have been issued by Messrs Burroughs, Wellcome & Co.

MESSRS E T Prarson & Co. Ld., Watling Street, E C. London, has sent us specimens of their well known and valuable Lactagot We are informed that Lactagol is valuable to the mother who desires to nuise the child and to the child itself—and it is largely used during the period of lactation

MARKET Report of Drugs and Chemicals, London, dated 7th I ebruary 1913 - Vide pages xx and xxii

# Sqrvice Botes

### IMS CONFFPENCE AT NAGPUR

SIR PARULY LUKIS, Kesi, Director General, 1 MS paid a meet welcome visit to Nagpur from the 11th to 14th January on his return journey from Burma and the Andamans. The occasion was a most opportune one for the Central Provinces have just celebrated their Jubilee and signs of progress and development are evident on all sides—in no direction perhaps is the analysism more clearly. in no direction perhaps is the awakening more clearly discernible than in that most dear to the Sir Pardey Lukis' heart, namels, the branches of medicine

On Monday morning, the 13th, the I M S officers of the Provinces met in Conference at the office of the Inspector General of Civil Hospitals, Colonel Dennys, I M S, at which the Director General kindly consented to be present.

Many matters per taining to professional and administrative problems were informally discussed, the senior officers drawing on their experiences and elucidating many knotty points. After the Conference a photograph was taken. In the evening Colonel Dennys gave a most successful dinner at the C P Club inviting all the I M S officers and several senior civilians to meet the Director General.

several senior civilians to meet the Director General Twenty I M S officers sat down to dinner After the toast of the King-Emperor which was proposed by Major Stokes, Sanitary Commissioner, Central Provinces, Colonel Dennys proposed the health of Sir Paidey Lukis He spoke in glowing terms of the distinguished career of his guest and in glowing terms of the distinguished career of his guest and described how it was heralded in early days, when they were at St Bartholomew's hospital together, by gold medals and prizes, again by his obtaining first place in the I M S examination, and now it has culminated in his selection as Director General, I M S and Knighthood Colonel Dennys then gave some reminiscences of hospital work in pre Listerian times and contristed them with the present. The Director General in responding said that the remarks

The Director General in responding said that the remarks of his host were calculated to make him blush, but that of his host were calculated to make him blush, but that owing to many years' experience as a practising physician he has forgotten how to He then alluded to the two Royal Commissions which have a direct bearing on the I M S, and to the many and great dangers which have threatened the service in recent years. It had emerged from the gloom which surrounded it, if anything, stronger than before, and he considered the prospect hopeful and encouraging. He then proposed the toast of prosperity to the Indian Medical

This was replied to by Captain Grisewood, the latest joined, who in a crisp and elever little speech described the difficul

who in a crisp and clever little speech described the difficulties and embairassments of the young civil I M S officer
Lieut Colonel Banatvala then proposed the toast of the
C P Commission, showing how, thanks to them, in the last
15 years the Province had risen from a condition of jungle
and primitive agriculture to its present state of high indus
tiral activity and progress. This toast was replied to by
Sir Henry Drake Brockman who in return thanked the
I M S, for their ready help and said he was glad to have
them as his colleagues and rejoiced to find them as strong

Lieut Colonel Andrew Buchanan then proposed the health of the host Colonel Dennys, and thanked him for initiating such meetings which were most useful. The toast was res

After dinner Captain Reaney aided by Mi Stanyon kept up a lively concert at the piano with "Over the Valley and over the Level" and many other old favourites, in which

everybody joined vociferously

The following officers were present at the dinner —
The Hon'ble Surgeon General Sir Charles Pardey Lukis,

CSI,IMS CSI, IMS
SIT Henry Veinon Drake Brockman, Kt, ICS
Mr H J Stanyon, CIE
Mi J Walkei, CIE, ICS
Colonel G W P Dennys, IMS
Lieut Colonel H E Banatvala, IMS
Lieut Colonel A Buchanan, IMS
Lieut Colonel W B Lane, IMS
Maior C H Bensley, IMS Lieut Colonel W B Lane, I M S
Major C H Bensley, I M S
Major N R J Rainier, I M S
Major F O N Mell, I M S
Major P K Chitale, I M S
Major P K Chitale, I M S
Major T G N Stokes, I M S
Major T G N Stokes, I M S
Major J C S Ovley, I M S
Captain J M A Macmillan, I M S
Captain W Tarr I M S
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Captain M F Reaney I M S
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Captain M J Fraser, I M S
Captain F P Wernicke, I M S
Captain A E Grisewood, I M S

A CURIOUS case was decided at the courts of judicature, in London, on 15th December 1912, when leave was granted A CURIOUS case was decided at In London, on 15th December 1912, when leave was granted by the presiding judge to presume the death of Surgeon Major John Squire, late of the Bengal Medical Service, on or after the 27th January 1905, the last date on which he was known to have been alive. In 1877 his wife obtained a decree for a judicial separation, and after that date he had received his letters through the International Letter Bureau in Duke Street Adelphi, London, in the name of Mr. Harry Pavne. Counsel stated that in February 1905, Dr. Squire's bankers received an anonymous letter which rain as follows—"Gentlemen,—I wish to inform you that John Squire, "Gentlemen, -I wish to inform you that John Squire, Surgeon Major in the Bengal Aimy, died on February 8th,

# Coppespondence

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The only consideration against the flaming method in dis infecting 100ms of the type met in Indian houses of the labouring classes would be in respect to time consumed, when compared with the utilization of fluid disinfectants—if it were held to be necessary to employ it without special selection of surfaces, as in the latter mode of disinfection. Against this could be balanced much economy of staff necessary in

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Yours faithfully W G KING, CIE, IMS (RET)

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Yours obediently.

LALA MAHABIR PERSHAD, Sub Assistant Surgeon, Tikari Ray Dispensary

### THERAPEUTIC NOTICES

WE have received specimens of a substance called VI QUININE, which we are informed is simply quinine rendered tasteless. We would be more convinced if we saw an analysis of the powder. The Calcutta agent is Mr. A. C. Bisharad, Bow Bazai, Calcutta

THE well known firm of W WATSON & Co, LD, X Ray and Electro-Medical Apparatus makers, have moved from High Holbon to 184, Great Portland Street, W, London Then show rooms there are well worth a visit

WE have received specimens of PNEUMOSAN (Pneumosan Chemische Fabrik, 157, Great Poitland Street, W., London) It is an amyl thio trimethylamine compound, and has an enormous number of testimonials in its favour in the treat ment of all types of tuberculosis

THE OD Chemical Co of New York, send us samples of SANMETTO, which is recognised to be a standard remedy in genito-urinary troubles. The firm has numerous Agents in Bombay and Calcutta, Madras and other towns in India

In thyroid medication, the dose of thyroid gland has usually been regarded as 3 to 10 grs, and is so given in the majority of books on the subject. Recently, however, certain authorities have stated that as the result of extensive clinical trials they have found doses of gr 1/10 to gr 1 equally satisfactory To provide for this new system of dosage two additional strengths—gi 1/10 and gi 4—of 'Tabloid' Thyroid Gland have been issued by Messrs Burnoughs, Wellcome & Co

MESSES E T PEARSON & Co, Ld, Watling Street, EC, London, has sent us specimens of their well known and valuable Lactagol We are informed that Lactagol is valuable to the mother who desires to nuise the child and to the child itself—and it is largely used during the period of lactation

MARKET Report of Drugs and Chemicals, London, dated 7th February 1913 - Vide pages va and xxii

# Sprvice Motes

### I M S CONFERENCE AT NAGPUR

SIR PARDEL LUKIS, KCSI, Director General, IMS paid a most welcome visit to Nagpur from the 11th to 14th January on his return journey from Burma and the Andamans. The occasion was a most opportune one for the Central Provinces have just celebrated their Jubilee and signs of progress and development are evident on all sides—in no direction perhaps is the awakening more clearly discernible than in that most dear to the Sir Pardey Lukis' heart, namely, the branches of medicine heart, namely, the branches of medicine

On Monday morning, the 13th, the I M S officers of the Provinces met in Conference at the office of the Inspector General of Civil Hospitals, Colonel Dennys, I M S, at which the Director General kindly consented to be present Many matters pertaining to professional and administrative problems were informally discussed, the senior officers drawing on their experiences and elucidating many knotty points. After the Conference a photograph was taken. In the evening Colonel Dennys gave a most successful dinner at the C P Club inviting all the I M S officers and serveral senior civilians to meet the Director General.

several senior civilians to meet the Director General

Twenty I MS officers sat down to dinner After the toast of the King-Emperor which was proposed by Major Stokes, Sanitary Commissioner, Central Provinces, Colonel Dennys proposed the health of Sir Pardey Lukis He spoke in glowing terms of the distributed and the spoke in glowing terms of the distributed and the spoke in glowing terms of the distributed and the spoke in glowing terms of the distributed and the spoke in glowing terms of the distributed and the spoke in glowing terms of the distributed and the spoke in glowing terms of the distributed and the spoke in glowing terms of the distributed and the spoke in glowing terms of the distributed and the spoke in glowing terms of the distributed and the spoke in glowing terms of the spoke in glowi neglowing terms of the distinguished cateer of his guest and described how it was heralded in early days, when they were at St Bartholomew's hospital together, by gold medals and prizes, again by his obtaining first place in the I M S examination, and now it has culminated in his selection as Director General, I M S and Knighthood Colonel Dennys then gave some remuisiences of heavital work in the Listerian times and contrasted them with the present

The Director General in responding said that the remarks of his host were calculated to make him blush, but that of his host were calculated to make him blush, but that owing to many years' experience as a practising physician he has forgotten how to He then alluded to the two Royal Commissions which have a direct bearing on the I M S, and to the many and great dangers which have threatened the service in recent years. It had emerged from the gloom which surrounded it, if anything, stronger than before, and he considered the prospect hopeful and encouraging. He then proposed the toast of prosperity to the Indian Medical Service.

Service
This was replied to by Captain Grisewood, the latest joined, who in a crisp and clever little speech described the difficul ties and embairassments of the young civil I M S officer

Lieut Colonel Banatvala then proposed the toast of the P Commission, showing how, thanks to them, in the last C P Commission, showing how, thanks to them, in the last 15 years the Piovince had isen from a condition of jungle and primitive agriculture to its present state of high industrial activity and progress. This toast was replied to by Sir Henry Diake Brockman who in return thanked the I M S, for their ready help and said he was glad to have them as his colleagues and rejoiced to find them as strong as ever

Lieut Colonel Andrew Buchanan then proposed the health of the host Colonel Dennys, and thanked him for initiating such meetings which were most useful The toast was res ponded to with musical honours

After dinner Captain Reaney aided by Mr Stanyon kept up a lively concert at the piano with "Over the Valley and over the Level" and many other old favourites, in which

everybody joined vociferously

The following officers were present at the dinner —

The Hon'ble Surgeon General Sir Charles Pardey Lukis,

KCSI IMS CSI IMS
SIT Henry Veinon Drake Brockman, Kt, ICS
MI H J Stanyon, CIE
MI J Walkei, CIE, ICS
Colonel G W P Dennys, IMS
Lieut Colonel H E Banatvala, IMS
Lieut Colonel A Buchanan, IMS
Lieut Colonel W B Lane, IMS
Maiot C H Bansley, IMS Lieut Colonel W B Lane, I M 9
Major C H Bensley, I M 8
Major N R I Ranner, I M 9
Major F O N Mell, I M 8
Major P K Chitale, I M 8
Major P K Chitale, I M 8
Major T G N Stokes, I M 8
Major T G N Stokes, I M 8
Major J C S Oley, I M 8
Captain J M A Macmillan, I M 8
Captain W Tarr, I M 8
Captain W Tarr, I M 8
Captain C C C Shaw, I M 8
Captain M F Reaney, I M 8
Captain W J Fraser, I M 8
Captain F P Wernicke, I M 8
Captain A E Grisewood, I M 8

A curious case was decided at the courts of judicature, in London, on 15th December 1912, when leave was granted by the presiding judge to presume the death of Surgeon Major John Squire, late of the Bengal Medical Service, on or after the 27th January 1905, the last date on which he was known to have been alive. In 1877 his wife obtained a decree for a judicial separation, and after that date he had received his letters through the International Letter Bureau in Duke Street, Adelphi, London, in the name of Mr. Harry Payne. Counsel stated that in February 1905, Dr. Squire's bankers received an anonymous letter which can as follows. bankers received an unonymous letter which ran as follows — "Gentlemen —I wish to inform you that John Squire, Surgeon Major in the Bengal Army, died on February 8th,

1905" The envelope bore the Southampton postmark, but though enquiries had been made there, no trace of him could be found. Mrs Squire and her sons live in Tramania. could be found Mrs Squiie and her sons live in Tremania John Squire was born in July 1822, so was eighty two in February 1905. He took the MR C S in 1844, entered the IMS as Assistant-Surgeon on 30th April 1845, became Surgeon on 1st April 1859, and Surgeon Major on 30th April 1865 returng on 28th December 1871. He served in the Surley Campaign in 1845.46, and in the Indian Mutiny in 1857.58, in Gorakhpur and Oudh, being mentioned in despatches, in GO of 21st April 1858. The Indian Army List of July 1905, in the list of casualties at the end, includes his name as having died on 8th February 1905.

ON January 30th, 1913, there were 23 officers of I M S promoted to be Lieutenant Colonels, 2.2, Lieutenant Colonels C Milne, MB, V G Drake Brockman, W Young FRCSE, J J Bourke, MB, B R Chitterton, BA, MB (Dub), FRCSI, C P Prall, C E Williams, MD, J N Macleod, CIF, FRCSE, W H Ogrline, MB, R Head, MB (Dub) E R Parry, MB, P St C More, MB, of the batch who entered the service on 30th January 1593, and at the same time the first batch of accelerated promotions reached the stage of Lieutenant Colonel in 194 years from date of first commission, 26 "having completed 8 years full pay service in the rank of Major," viz. Cecil Stevens, MD (Lond), FRCS L Rogers CIE, FRCS, FRCP, MD (Lond), E A R Newman, MD (Camb), G T Birdwood MD, R G Tinner FRCS J Davidson, DSO, MD P P Kilkelly, MB (Dub), E H Sharman B Nauth and T H Foulkes, FRCS, a very distinguished batch, it will be agreed

CAPTAIN J ANDERSON, Indian Medical Service, an officiating Agency Surgeon of the 2nd class, is posted as Civil Surgeon, Hazara, with effect from the 20th December

MAJON V G DRAKE BROCKMAN, Indian Medical Service an Agency Surgeon of the 2nd class, is posted as Civil Surgeon Deta Ismail Khan, with effect from the 21st December 1912

THE following Captains are promoted to be Majors, I M S, with effect from 27th December 1912 —

Anderson Gray McKendrick Mr Owen St John Moses, MD, FRCS F John Wishart Little, MB Harold Rothery Nutt, MD, FRCS Norman Emile Henry Scott, MB Charles Edward Southon, MB Lames Husbard MR, FRGS James Husband, MB, FRCS F Henry Beitram Foster, MD Henry Waiwick Illius, FRCS F Edward Wemyss Browne Satis Bose, M B

The first ten officers have first commissions dated 27th June 1901, and consequently receive accelerated promotion by 6 months, Major S Bose's first commission is dated 27th June 1901, and he thus goes over the head of 17 officers whose first commissions are dated 29th January 1901 and 27th June 1901

The following officers received regular promotion to Major on 29th January 1913 after 12 years' service, viz, Captains N S Wells, E H B Stanley, R McL Dalziel, J J Robb and S A Ruzzak

It will thus be seen that unless there officers qualify for promotion within the next few years some of the batch dated 29th January 1901, will find themselves lower on the list than those who entered the service 6 months later, viz, 27th June 1901, for the above mentioned men of the 27th June 1901 are ranked as Majors from 27th December 1912, whereas several of the men whose first commissions are dated 29th January 1901, will only rank as Majors from 29th January 1913, ie, they love a month senicity even compared with men who entered the service 6 months later. It remains then for such men of the 29th January 1901 batch as feel aggreed to see that they qualify for promotion and so regain their old place on the list

CAPTAIN A F HAMILTON, MB, IMS, and Major H A Forbes Knapton, IMS respectively delivered over and received charge of the office of the Deputy Sanitary Commissioner, Central Registration District, on 4th January 1913 before office hours

MAJOR J STEPHFASON, INS, DSC FRCS, Principal of the Government College, Lahore, and Lieutenant Colonel R Heard, Banks, IMS, have been nominated Fellow of the Punjab University

LIEUTENANT COLONEL E WILLINSON, TRCS, Sanitary Commissioner, Punjib, is granted 21 months combined leave from 1st February 1913

MAJOR W H KENRICK, IMS, Civil Surgeon, who was granted combined leave by Orders No 1890, dated the 27th October 1911, and No 1735, dated the 21st September 1912, has been granted, by His Majesty's Secretary of State for India, study leave from the 25th March to 2nd July 1912, and from 21st September to 2nd Najember 1912. and from 21st September to 2nd November 1912

Major A M Fieming, IMS Civil Surgeon, who was granted combined leave by Orders No 2042, dated the 14th November 1911, and No 1379, dated the 20th July 1912, was on study leave from 1st May 1912 to 21st lune 1912, 15th July 1912 to 27th July 1912, 2nd September 1912 to 28th September, 1912 and 3rd October 1912 to 8th November 1913 ber 1912

THE Government of India has sanctioned the grant to medical officers and subordinates deputed to attend the training classes in clinical bacteriology and technique at Kasauli, halting allowance for a period of ten days which may be extended at the discretion of the local Government to the termination of the classes

CAPTAIN M R C MCWATTERS, I MS, has passed the examination of F R C S , England

COLONEL H ST C CARRUTHERS, IMS, Inspector General of Civil Hospitals, Burma, is granted, with effect from the 9th November 1912, combined leave for seven months rrom the 9th November 1912, combined leave for seven months and twenty one days, viz., privilege leave, under Article 260 of the Civil Service Regulations, from the 9th November to the 5th December 1912 and leave on private affairs under paragraph 226 Army Regulations, India, Volume II, from the 6th December 1912 to the 29th June 1913

The Home Deput ment Notification No 906, dated the 25th October 1912, is hereby cancelled

THE services of Captain C H Baiber, MB, IMS, are replaced at the disposal of His Excellency the Commander 1" Chief in India

CAPTAIN J TAYLOR' MB, IMS, was granted privilege leave for three months with study leave for five mouths and twenty eight days in continuation, with effect from the 10th November 1912

The Department of Education Notification No 1993, dated the 10th October 1912, is hereby cancelled

CAPTAINE A WALKER, M.B., I.M.S., Officiating Ophthalmic Surgeon at the General Hospital, Rangoon, is appointed as a temporary measure, to officiate as Civil Surgeon, Bassein, until he is relieved by Captain E.T. Harris, M.B., I.M.S., in place of Lieutenant Colonel J. Penny, I.M.S., proceeding on leave

CAPTAIN R D SAIGOL, MB, IMS, Officiating Police Surgeon and Pathologist at the General Hospital Rangoon, is placed in charge of the current duties of the Ophthalmic Surgeon, General Hospital, Rangoon, in addition to his own duties, as a tempolary measure, in place of Captain E A Wolkey, MB, LAS Walker, ME, IME

CAPIAIN E T HARRIS, WB, IMS, Civil Surgeon, Mogok, on relief by Major T Stodart, MB, CM, IMS, is appointed to be Civil Surgeen, Bassein, in place of Ciptain E A Walker, MB, IMS

E A Walker, MB, IMS
So much of this department Notification No 397, dated the 10th December 1912, as relates to the posting of Captain E T Halls, MB, IMS, and this department Notification No 415, dated the 21st December 1912, are hereby cancelled

 $D_{\rm R}$  R A, Murphl, L r o p g , is promoted to be Surgeon Lieutenant, Surma Valley Light Horse

LIEUTENANT COLONEL W MOLESWORTH, I MS, was grant ed one year's combined leave from 14th December 1913

Major W J Neblack, IMS, recently got 15 months' combined leave up to 8th December 1913

MAJOR C B HARRISON, I MS, is due out from leave on 5th March 1913

Major R Bryson, IMS, has been appointed Acting Surgeon 1st District Madias, and Superintendent, Roya puram Medical School, Madias

Major L E GILBERT, IMS, recently Surgeon to H E the Governor of Madras, has gone back to civil employ,

On leturn from furlough on 31st December 1912 Major W L Long, I M S, was posted as District Medical Office, Combitore

MAJOR R B B FOSTER, IMS, has been posted to act as District Medical Officer, Malabar, and Superintendent of the Lunatic Asylum, Calicut

Captain L Hirsch, IMS, has been granted combined and study leave for 18 months from 2nd January 1913 with permission to prefix the Christmas holidays

Captain J W Illius fros Ed, ims, is not due back from 2 years' furlough till October

CAPTAIN F C ROGERS is due back from 161 months' leave on 19th April

CAPTAIN C A F HINGSTON, INS, is due out from 9 months 16 days leave on 8th May

CAPTAIN M J QUIRKE, I MS, IS due out from combined and study leave on 28th May

Major J W Cornwall, M D, I M s, is due out from two years' leve in September next

Auong the 64 students in attendance at the 40th Session of the London School of Tropical Medicine, we note the names of Lt Col J J Pratt, IMS (retd), Major G Browse, Major de Vere Condon, Capt H Melliush and Capt W Gillitt,

THE furlough on medical certificate granted to Lieutenant Colonel J. R. Adie, I.M.S., in Punjab Government Notification No. 353, dited 27th Maich 1912, is extended under Articles 308 (a) and 831 of the Civil Service Regulations by

a further period of six months
Lieutenant Colonel Adie took 8 months' leave (m c) from
12th April 1912

THE services of Captum C H Burber, IMS, Officiating Civil Surgeon, Banda, are replaced at the disposal of the Government of India, Home Department, from the date of his relinquishing charge of his present duties

THE services of Captain W L Forsyth, 1 MS, are placed at the disposil of the Government of Madias for employment

INDIAN SUBORDINATE MEDICAL DEPARTMENT

Assistant Surgeon Branch

Bengal Establishment

The following The following promotions are made, subject to His

Senior Assistant Surgeon and Honorary Lieutenant Thomas Baldry to be Senior Assistant Surgeon, with the honorary lank of Captain

1st Class Assistant Surgeon (supernumerary Senior Assistant Surgeon and Honorary Lieutenant) Charles James Fox (reconded) is absorbed in the rank of Lieutenant (seconded) (seconded)
1st Class

Assistant Surgeon (seconded) to be Senior Assistant Surgeon, with the honorary James Francis Fleming

1st Class Issistant Surgeon Edwin Joseph Murphy (seconded) to be Senior Assistant Surgeon, with the honorary rank of

1st Class Assistant Surgeon Robert Gunn Babonau (seconded) to be Senior Assistant Surgeon, with the honorary ank of Lieutenant (seconded)

1st Class Assistant Surgeon Harry George Charles Mills (seconded) to be Senior Assistant-Surgeon, with the honorary

iank of Lieutenant (seconded)

1st Class Assistant Surgeon Edward Gerald Alfred Prins to be Senior Assistant Surgeon with the honorary rank of Lieutenant vice Senior Assistant Surgeon and Honorary Control Local Propher surgeon protect with effect from Captum Joseph Brandon superannuated, with effect from the 7th December 1912

WITH reference to the notifications quoted in the margin, A 1 m y Department Notification No 982, dated the 7th April 1011 A 1 m y Department Not fication No 822 dated the 29th Septem ber 1911

the promotion to the present rank of Major Thomas Stodart, VB, published in Army Department Notification No 921, dated the 20th October 1905, is antedated from the 29th July 1905 to 30th January 1905

The promotion of Major H A Williams, DSO, MB, notified in Army Department Notification No 86, dated the 2nd February 1912 is antedated from the 27th Junuary 1912 to the 27th July 1911

This means both these officers have received accelerated promotion

LIEUTENANT COLONEL C R M GPEEN, FRCS (Bengal), Lientenant Colonel G A W Hall (Bengal) and Lieutenant Colonel G S Thompson (Bombas), 1 u.s., we the three litest additions to the selected list as shown in the Aimy List of Junuary 1st

The last Bengal man to be selected got his commission on 30th September 1886, the list Bombay man 18 months later Murch 1888 and Lieutenant Colonel Pridmore, the last Madris man got his commission so late as 28th July 1891, i.e. he received selection over 41 years earlier than the last Bengal man. This cannot however be avoided

THERE are practically two more Bengal vacancies, viz, the place of Lt Col J J Pratt, whose extension of leave was up on 1st January 1913, and that of Colonel Drury, I G C H, of Behar for whom a new Colonel's appointment must be created, and which, it is expected will soon be sanctioned by the Secretary of State Lt vol J Crimmin, vc, cie, has also completed 30 years' service for pension and will be 55 on 19th March Lt Col Collie will also vacate for completing his 30 years' service on 29th Jane so that two more Bombay vacancies come soon vacancies come soon

SURGEON GENERAL A  $\,^{\circ}$  M Crofts, cie, will act foi Sir Paidey Lukis as Director General, i M  $_{\circ}$ 

DURING the current year the only promotions to Colonel rank (permanent) will be caused by the retriement of H St C Carruthers on 29th June 1913 and Colonel C F Willis, CB, on 30th September

CAPTAIN H W FAREBROTHER, RAMC, is appointed as a temporary measure to hold collateral charge of the Civil Surgeoncy at Merkila, in place of Ciptain E B Munro, I MS, until he is relieved by Vajor F V O Beit, I MS

On relief by Lieutenant Colonel F J Dewes, I M S, Major F V O Beit, I M S is appointed to be Civil Surgeon, Meiktila, in place of Captain H W Farebrother, R A M C I

THE Government of India have decided that the designation of the following officers of the Medical Branch of Army Head Quarters, India, should be altered as follows—
(a) "Director, Medical Services, Army Head Quarters, India," to become "Director, Medical Services in India."
(b) "Deputy Director, Medical Services, Army Head Quarters, India," to become "Deputy Director, Medical Services, India," to become "Deputy Director, Medical Services in India."

Major C C S Barry, IMS, was granted by His Majesty's Secretary of State for India study leave from the 1st June to the 7th August 1912 and from the 1st to the 24th

THE following postings and transfers are ordered in the Civil Medical Department Burma—
On relief by Captain E T Hairis, MB, IMS, Senior Military Assistant Surgeon and Honorary Captain J F Curran, Civil Surgeon, Loungoo, to be Civil Surgeon, Insein and Hunthanaddy (excluding the Syriam Municipality), in place of Senior Military Assistant-Surgeon and Honorary Captain J F Goldsmith, transferred
Senior Military Assistant Surgeon and Honorary Captain

Senior Military Assistant Surgeon and Honorary Captain J F Goldsmith to be Civil Surgeon, Loimwe, in place of First Class Military Assistant Surgeon G W Vincent,

THE Commander in Chief in India is pleased to make the

following appointments —

Major C W F Melville, I M S, to be Deputy Assistant
Director of Medical Services (Mobilisation), 1st (Peshawai)
Division, sub mo tem vith effect from the 19th December
1912, vice Major C W H Whitestone, R A M C, transferred

MAJOR W T' McCowen, I MS, whose blevet majority was gained by blavely in the field was at one time Junior House Surgeon and Ophthalmic House Surgeon at the Bristol Royal Infirmary, so the Bristol Medico chirungical Journal for December tells us

THE Commander in Chief in India is pleased to make the

following appointments —
Lieutenant Colonel H Austin Smith, I M S, Civil Suigeon,
Simla, East, to the medical charge of Army Head quarters

Simla, East, to the medical charge of Army Head quarters Staff and Establishments remaining at Simla during the winter, with effect from the 27th October 1912

Major S F St D Green, R A M C, to be specialist in midwifery and the diseases of women and children 4th (Quetta) Division, with effect from the 12th November 1912

Major S R Godkin, I M S, to be specialist in Advanced Operative Surgery, 9th (Secunderabad) Division, with effect from 16th November 1912

COLONEL H J BARRAT, British Service, to be Assistant Director of Medical Services, Baielly, Garhwal and Dehra Dun Brigades, with effect from the 17th November 1912, wice Colonel L E Anderson, British Service, promoted and transferred

SIR RONALD ROSS, who intends to reside in future at Cavendish Square, London, has been appointed Physician for Tropical Diseases to King's College Hospital On the transference of the hospital in South London in the course of the summer, he will have charge of beds for cases of tropical disease, he will however retain his connection with Liverpool as lecturer on Malaria

LIEUTENANT COLONEL H P DIMMOCK, I MS (letited), recently read a paper at the Oxford Medical Society on Cerebro spinal Fever in India, based in his experience of the disease in the old jail at Shikarpur

CAPTAIN J W H BABINGTON, I MS, Major G Bide, I MS, Lieutenant R V Morison, I MS, have had the degree of M D, Edinburgh, conferred on them on December

MILITARY ASSISTANT SURGEON R T RODGERS, Superin tendent, Central Jail, Raipur, is deputed temporarily on special duty to Calcutta

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Captain C C C Shaw, IMS, Civil Surgeon, Raipur, to the medical charge of the Raipur Central Jail

THE following is taken from the Burma Gazette of

25th January
Major P Dee, IMS, is appointed to officiate as a 1st
Class Civil Surgeon with effect from the 11th November 1912
before noon, the date on which Major E R Rost, IMS,

proceeded on leave

Major A Fenton, IMS, is appointed to officiate as a 1st Class Civil Surgeon for the period from the 26th Novem ber 1912 before noon, being the date on which Lieutenant Colonel R H Castor, IMS, proceeded on leave, up to the date on which Lieutenant Colonel F J Dewes, IMS,

the date on which Lieutenant Colonel F J Dewes, IMS, returns to duty
Major F V O Beit, IMS, is appointed to officiate as a 1st Class Civil Surgeon for the period from the 14th December 1912 before noon, being the date on which Lieutenant Colonel T W Stewart, IMS, proceeded on leave up to the 20th December 1912 before noon, the date on which Major T Stodart, IMS, on reversion to his appoint ment, assumed charge of his duties as Civil Surgeon, 1st

Major F A L Hammond, IMS, Officiating Civil Surgeon, 1st Class, is appointed to be a 1st Class Civil Surgeon, sub pro tem, with effect from the 11th February 1913, the date on which Major E R Rost, IMS, on long leave, reverts to his appointment as a Civil Surgeon, 2nd Class

MAJOR DE VERE CONDON, MD, IMS, Major G Blowse MD, IMS, have passed the examination at Cambridge University for the Diploma of Tiopical Medicine and Hygiene

THE Civil Surgeon of Lucknow to hold visiting medical charge of the Hardor district, vice Captain G Hynes, 18 M D

Major P P Kilkelly, MB, Bch (Dub), IMS, has been allowed by His Wajesty's Secretary of State for India an extension of furlough on medical certificate for six

CAPTAIN A J V BETTS, MB, IMS, has been allowed by His Majesty's Secretary of State for India to leturn to duty within the period of his leave

MAJOR E F GORDON TUCKER, M B, I M S, and Lieute nant Colonel S H Buinett, I M S, respectively, dely nant Colonel S H Burnett, I MS, respectively delivered over and received medical charge of H M's Common Prison, Bombay, and H M's House of Correction, Byculla, on the 18th January 1913 after office hours

THE result of the competition for admission to the Indian Medical Service, which was held from January 20th to 25th, was announced as follows The maximum number of marks

was announced as follows The maximum number of maiks obtainable is 5,100 —
Richard R M Porter, MA, MB, ChB, Aberdeen Univ, 3,707
Robert Sweet, MB, ChB, Glasgow Univ, 3,489
Edward Calvert, BA, Camb, MRCS, LRCP, St Bartholomews, 3,320
Patrick J Walsh, MB, BCh, BAO, National Univ of Ireland, Univ Coll, Coik, 3,308
John R D Webb, MRCS, LRCP, Liverpool Univ and Univ Coll Hosp, 3,301
Francis Phelan, LRCP & S, Ireland Univ Coll, Coik, 3,203

Coik, 3,203
Aithur H C Hill, MRCS, LRCP, Middleser Hosp,

3,130 Nawin Chand Kapur, MRCS, LRCP, Univ Coll Hosp,

3,086

Joseph F Holmes, MRCS, LRCP, Calcutta Unvi and Charing Closs Hosp, 3,062 Alchibald C Maciae, MB, ChB, Aberdeen Unvi, 3,057 Haji Sulaiman Gulamhussein Haji, MRCS, LRCP, Lon

don Hosp, 3011
Nanayan Krishna Bal, LMS, Bombry, MRCS, LRCP, Middlesex Hosp, 3,008

Seven others qualified but were unsuccessful, and three failed to qualify The successful candidates will be appointed heutenants on probation

# Motrce.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to The Editors, The Indian Medical Gazette, c/o Messis Thacker, Spink &

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Annual Subscriptions to "The Indian Medical Gazette," Rs 12, including postage, in India Rs 14, including postage, abı oad

#### BOOKS, REPORTS, &c., RECEIVED —

Text-book of Gynecology W B Saunders & Co
Hirsts Text book of Obstetrics W B Saunders & Co
Jordan's General Bacteriology (3rd Ed) W B Saunders & Co
Stile's Nutritional Physiology W B aunders & Co
J B Murphy's Surgical Clinics W B Saunders & Co
Dr Crookshank, Flatulence & Shoe H K Lewis
Dalton's Venereal & Generative Diseases 4/ Henry Kimpton
Green Armytage, Labour Clinics Re 18 Thacker, Spink & Co
Bulletin of Northern Territory (Australia No 1 and No 1a)

### LETTERS, COMMUNICATIONS, &c , RECEIVED FROM .-

Lt.-Col H Smith, I M S, Amritear, Capt S Smith, I M S, Allahabad, Capt Hodgkinson Lack, I M S Bhamo, Lt Col W D Sutherland, I M S, Calcutta, Major Mathews, I M S, Dehra Doon, Lt Col G Giffard, I M S, Madras, Major E E Waters, I M S, Hooghly Major Chitale I M S, Major Birdwood, I M S, Lucknew, Colonel P Hehir, I M S, Rangoon, Major O G Lalor, I M S, Rangoon, Capt Matson, I M S, Capt O Smith, I M S, Ohitral, Major L Rogers, CIE, I M S, Calcutta Sir Ronald Ross, KCB, London, Dr L G Fink, Myaungmya, Colonel W G King, CIE, I M S (retd), London

# Briginal Articles.

# TRICHOSTRONGYLUS COLUBRIFORMIS (GILES 1892), A HUMAN PARASITE

By CLAY I'ON I ANE, M D (Lond),
Major, I M s,

Civil Sur geon, Ber hampor e, Bengal

THE change of name of a human parasite is not a matter which is likely to provoke much enthusiasm in the minds of most medical men hope, however, that, for members of the Indian Medical Service, there may be, in the present instance, at least some compensating satisfaction m the feeling that there is, as I hope to show, definite proof that the correct name of the parasite at present known as Trichostrongylus instabilis, Railliet 1893, is Trichostrongylus colubriformis, Giles 1892, and that it will, therefore, become permanentry associated with the name of the latter, having been first found and described by Giles when he was a distinguished member of the Indian Medical Service It will follow that the particular form in which this paper is presented is due to the fact that it is intended for publication in a medical journal

For this reason it is permissible to begin by a reminder that one of the well-known principles which have been accepted by zoologists in order to fix with stability the names of animals, is that the original name given to an animal shall be itspermanentname Every animal has, of course, two names, a generic name, and a specific name An animal may change its generic name if it is for one reason or another moved from one genus to another but whatever happens it retains its specific name Once given and published, this is permanent, and may not be altered even by its While this rule prevents capticious changes, it introduces this corollary, that if the same animal has been described under different names, all the names except that under which it was originally described are megular and lapse

This is the case in the instance now under discussion. Among the group of several worms which are at the present time generally agreed upon as comprising the genus. Trichostrongylus, I ooss 1905 (which genus, had not yet been split off from the genus. Strongylus when the worms to be immediately mentioned were first described) there occur three names with which the present paper is concerned. They are as follows.

In 1892 Giles (1) described Strongylus colubraforms from the intestine of sheep in Shillong (Assam) and Sanawai (Punjab) India, in 1893 Railliet(2) described Strongylus instabilis from the intestine of European sheep, and in 1895 Looss(3) described Strongylus subtilis from the gut of man and later of the sheep in Egypt while Ijima(4) has identified it as fai East as Japan has since introduced the genus Trichostrongylus for these and allied forms, and has, after examining specimens of Transtabilis, furnished him by Railliet, satisfied himself that instabilis and subtilis are identical, so that the name subtilis has automatically lapsed, and the worm has, from that time to the present, been known as Tr instabilis It is only, therefore, with the identity or otherwise of Tr colubratormis and Tr instabilis that this paper is concerned

Regarding this point the present position has been concisely summed up by Ransom (6) in these species Trichostrongylus in-"This stabilis is so closely similar to Strongylus colubut for mis, Giles 1892, that it is very probable that the two are identical Looss (5) however considers that since there are certain discrepancies between Giles' description and figures on the one hand and Tr instabilis on the other, a further study of Strongylus colubriformis will be necessary to settle the question as to whether the two forms are identical or not" Looss' objections are these Firstly, the lengths of the worms differ, Looss finding that the males of To anstabilis measures from 4 to 45 mm, and the females from 5 to 6 mm, whereas Giles' figures for colubrator mas are "nearly 6 mm" for males. and "about 8 mm 'for females Secondly, the number of bursal rays in the 2 forms is different for Giles depicts (fig 1) 5 pans of rays and an unpaned median one for colubriformis while instabilis possesses 6 pans and an unpaned median 1ay or 7 rays when seen from the side (fig 2) Since all bursate nematodes possess the same number of bursal rays,\* viz, 2 ventral, 3 lateral and an externo-dorsal on each side, and an unpaned bifurcate dorsal ray, it becomes à priori extremely likely that some error has crept into Giles diawing, and that Looss (5) conjecture that one of the rays has been omitted from Giles figure is a correct one

With a view then to settling these points I wrote to Colonel Giles and asked him if he would be kind enough to allow me to examine some of his original material, and he very counteously furnished me with a few specimens of Strongylus colubriformis identified by and collected by himself at Sanawai. They had been kept in absolute alcohol for 20 years and were consequently

<sup>\*</sup> Much of the modern alteration of names of warms is due to the fact that original genera were too wide or were not natural ones. A good idea of what constitutes a natural genus may be most readily obtained in India by a comparison of \*\*Zachylosloma duodenale\*, easily obtainable from a large percentage of human beings in India, with A cannum and A caylamcum which are in my experience inhabitants of practically every parah dog in this part of India at least. The latter I have recently found in a human being. C. I.

<sup>\*</sup>The only apparent exception to this rule lies in the fact that very occasionally, and in certain genera, two of the rais may be fused, but even here the fusion is not absolutely constant nor complete and can be detected with care

shrunken and very brittle, so that, partly on this account, and partly for the reason that their numbers were few, the data for the settling of the measurements of the worm do not appear to me to be very satisfactory. I shall, however, return to this matter later

It is, however, otherwise with anatomy of the The shapes of the spicules and accessory piece of the males and of the overectors and tail of the females are identical for colubrator mis, and for *instabilis*, as was anticipated by Looss (5), and as will be evident from a comparison of figs 8 to 12 Regarding the bursal rays, fig 8 shows all those of the left side with the exception of the ventro-ventral, nor does it show the unpaned dorsal, it illustrates the fact that the externo-lateral is the thickest, 'a distinguishing feature of Tr instability, fig 9 shows the position of the ventro-ventral ray, a position of isolation which is characteristic of the genus, while fig 11 shows the bifurcate dorsal ray, and all the rays of the left side except the ventro-The secondary bifurcations of the dorsal 1ay were not made out It will be noted that although, owing to the brittleness and distortion of the worms the result of then long stay in absolute alcohol, no single view of all the rays which are usually visible from one side could be obtained, it was yet possible to ascertain that without doubt Trichostrongylus colubriformus possesses the usual number of rays of the bursate nematodes, and that then disposition and shape as well as the shape of the spicules, accessory piece (fig 10), and tail of the female (fig. 12) are identical with that of Trichostrongylus instabilis In other words, the two names apply to the same worm

There is another point of difference between unstabilis and Giles' description (1) of Strongylus colubriformis which is not expressly mentioned by Looss but which may be here discussed. Giles in his description says, "the female is provided with a pair of semi-eliptical-\* alæ situated opposite the neck which is markedly constricted giving her the outline of a cobia, but he adds later that he is by no means sure that they are uniformly present even in females, and continues, "the determination of point is rendered difficult by the fact that they are only visible when the worm is lying so that they project, when half turned round they cannot be seen at all, and this is the position in which the worm naturally lies have been able to make a satisfactory examination of one of the females which Giles sent to me, rotating her under the cover so that she was visible first from the dorsum, and then from the side (figs 13 and 14), the alæ are absent, so

that Giles' doubt as to their constant presence When they exist, as they did in is confirmed most of the females sent me by Giles, then presence becomes explicable by the consideration of two points The first is one to which Looss (5) draws attention, namely the ease with which the cuticle of members of this genus becomes raised into swellings if the worms are not killed while quite fresh, while the second is the statement of Giles (1) that the easiest way in which to find the worms is to begin the search by soaking the intestine for some hours in carbolised water, so that his worms could not have been quite fresh when killed

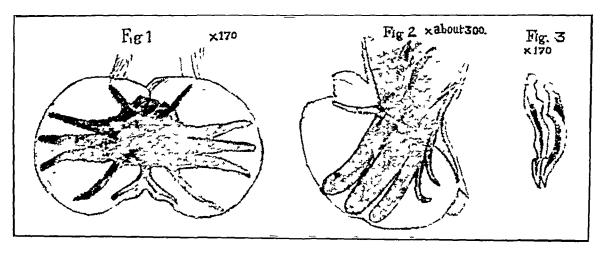
Circumstances have permitted me to approach this question of the identity of Tr colubrator mis and Tr instabilis from quite another direction. by compelling me to pay an enforced visit to Kasauli, which place is about two miles as the crow flies from Sanawai It is of course a mere matter of chance whether a sheep living in those parts is slaughtered at one of these places or at the other, so that any observation on the prevalence of parasites which applies to one place will equally apply to the other Speaking of Tr colubriformis Giles (1) says "I have found it both at Shillong and Sanawar in every carcass completely examined " By the kind assistance of Capt Acton, IMS, Director of the Pasteur Institute at Kasauli, I was able to obtain the intestines of three sheep killed at Kasauli found in each one of these a number of specimens of a Trichostrongylus which is, as the drawings show, undoubtedly identical with Trichostrongylus instabilis I desire to lay great stress on this point. In all I collected about 200 specimens, I examined under the microscope every individual worm, and they were all, without exception, specimens of the species at present known as Tr instabilis ings (figs 5, 6 and 7) show this point unquestionably. The form and arrangement of the bursal rays, spicules, and tail of the female are There were no specithose of Tr instabilis mens of any other members of the genus, Tr probolurus and Tr vitrinus were absent This second line of argument then runs thus -Giles invariably found in sheep killed in Sanawai a minute bursate nematode which is admittedly a member of the genus Trichostrongylus and which he named colubriformis In all cases of sheep (3 in number) which I examined within two miles of Sanawar I found a minute bursate nematode, a Trichostiongylus, there was only one species of that genus and that species in form and anatomy was identical with Trichosti on-That the worms I gylus unstabilis, Raillet collected were of the same species as those obtained by Giles admits of very little doubt, and if this observation stood alone it would afford the strongest presumption that the names

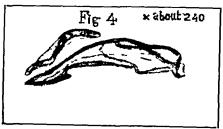
<sup>\*</sup>The expression "semi eliptical alm" used in the original is an obvious misprint which has been corrected by Col Giles in a reprint which he has been good enough to send me

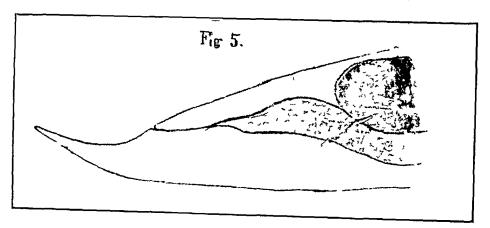
### TRICHOSTRONGYLUS COLUBRIFORMIS (GILES 1892), A HUMAN PARASITE

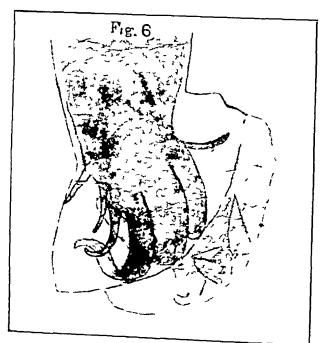
BY CLAYTON LANE, MD (Lond), MAJOR, IMS,

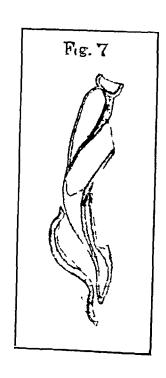
Civil Surgeon, Berhampore, Bengal









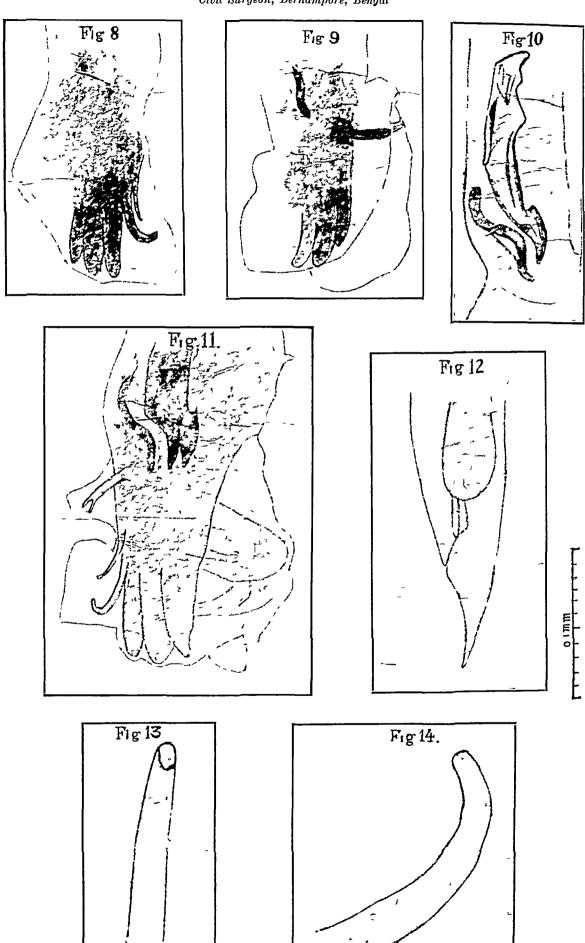


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## TRICHOSTRONGYLUS COLUBRIFORMIS (GILES 1892), A HUMAN PARASITE

By CLAYTON LANE, M  $_{\rm D}$  (Lond ), major, 1 M  $_{\rm S}$  ,

Civil Surgeon, Berhampore, Bengal



colubriformis and instabilis have been applied to the same species

As encumstances are, it forms an interesting confirmation of the facts obtained by direct examination of the material collected by Colonel (files

The worms which I collected were obtained by sedimenting in water the contents of part of the bowel The worms, however, were still alive when placed in hot 70 % spirit for preservation, and none of them showed any cuticular swellings about the neck or elsewhere

There remains to be considered the question of the size of the worms My measurements and drawings have been made with a Zeiss' drawing apparatus, the measurements by placing a millimeter scale on the stage of the microscope, and drawing it at table-level by means of the apparatus, the worms being then placed on the stage and measured off against the drawing of the scale, the accuracy of which was assured by checking it against the squares of a Thoma-Zeiss' hæmocytometer

My own measurements of the average length of specimens of Trichostrongylus colubriformis collected by myself in the manner described above at Kasauli, are 7 mm for males and 72 mm for females, the variations being from 6.1 to 7.6 mm and from 6 2 to 8 4 mm respectively Giles'(1) figures are "nearly 6 mm" for males, and "about 8 mm " for females, and Looss'(3) 4 to 45, and 5 to 6 mm respectively It would appear that these differences in size must be due either to nacial differences inherent in worms inhabiting hosts in different parts of the world, or to differences in methods of preservation Regarding the latter I have described exactly how the worms I have measured were preserved, but can give no information of the methods adopted by others Differences in methods of preservation, and in the constitution of fluids in which worms are placed subsequently, admittedly produce alterations in their size

Regarding the matter of possible racial differences it is perhaps not easy to speak with any great definiteness unless one has at one's disposal worms collected under similar conditions in different parts of the world, but in this connection the following points are offered for consideration

Aqchylostoma duodenale, recovered from stools in Berhampore after the administration of Manson's mixture, average in length 10 12 mm for males and 12 46 mm. for females, the limits being 8 to 116 mm and 10 to 17 mm. respectively Other observers give figures as follows -Braun (7) 8 to 10 mm and 12 to 18 mm . Stiles(8) 8 to 11, and 10 to 18 mm., Looss (9) a maximum of 9 and 12mm for males and females respectively Looss qualifies his figures by saying that after a vermifuge dead or half dead worms may be ejected stretched to a length of 10 mm, for males,

13 5mm. for females as a maximum, so that the average in Berhampore for males is greater than the maximum in Egypt, while the maxima for undecomposed worms in Berhampore is considerably greater than that in Egypt It is not uncommon here to get females of 14 or even nearly 15mm long, while in one case I recovered one 17mm. long, in perfect preservation, her chyle-intestine full of red blood, and her mouthcavity, and particularly her teeth (which could not be enlarged by decomposition) of a size corresponding to her length and bulk

The same holds good of Necator americanus from Berhampore My measurements for males are 8 to 9, with an average of 875mm, and for females 10 to 126, with an average of 113mm, while Stiles' (8) figures are 7 to 9, and 9 to 11mm, respectively, so that the average of the Berhampore female is larger than the maximum of the American

On the other hand I find that the female of Oxyurras vermicularis here has an average length of 8mm the limits being 72 to 95mm, whereas Braun (7) gives the size, presumably of European specimens, as 10mm. There is then evidence for believing that worms of the same species may vary in size in different parts of the world; and the strongest reason to believe that differences in size cannot be considered as invalidating identity of species based on anatomical similarity.

The argument may be summarised thus re-examination of Giles' specimens of Strongylus colubriformis shows that this parasite and Trichostrongylus unstabilis are anatomically identical The identity of the two species is confirmed by the fact that the only trichostrongyle found in sheep killed in the locality where Giles collected his specimens is the worm which is at present known as Trichostrongylus unstabilis This identity is not invalidated by differences in measurements between parasites collected in Europe, Egypt, and India. The correct designation of the parasite conceined is therefore Trichostrongylus colubriformis, Giles 1892.

1 Scientific Memoirs by Medical Officers of the Aimy of India, Part VII
2 Traité' de Zoologie medicale et agricole, 2 Ed
3 Centralbl f Bakteriol u Parasitenk Jena, 24th Aug

4 Zool mag Tokyo V 7 5 Centrlabl f Baktoriol u Parasitenk Jena, 22nd Sept

6 Nematodes parasitic in the Al Tract of cattle, sheep and other Ruminants—U S Dept, Agric Bull 127
7 Animal Parasities of Man, 1906
8 U S Hygienic Lab, Bulletin No 10, 1903
9 Records of the Egyptian Govt School of Med, Vol. VII,

### DESCRIPTION OF PLATES

All except Figs 1 to 4 are drawn to the scale attached to the Plates Figs I and 3 are magnified 170 times, and are after Giles Fig 2 is copied from Ransom after Looss and is magnified about 200 times, and Fig 4 is after Looss magnified about 240 times

Fig. 1 -Bursa of "St. ongylus colubrifor mis" seen from the end

Fig 2-Bursa of Trichostrongylus instabilis seen from

Fig 3-Spicules of "Strongytus colubriformis" seen obliquely

Fig 4-Right spicule and accessory piece of Tricho strongylus instabilis seen from the side

Fig. 5 to 7 are from specimens of Trichostrongylus colubriformis collected by myself in Kasauli

Fig 5-Tail of female from the side

Fig 6-Bursa of male from the side Fig 7-Accessory prece and right spicule of male seen from the side

Figs 8 to 14 are drawn from specimens of "Strongy lus colubriformis" collected and identified by Col Giles, and drawn by myself

Figs 8 9 and 11—Bursa of male seen from the side somewhat obliquely

Fig 10-Accessory piece and right spicule of male

Fig 12-1ail of female from the side Fig 13-Head of female from venter Fig 14—Head of female from side

### ARSENIC IN THE TREATMENT OF KALA AZAR

BY DR F ROUX

(Formerly Surgeon of the French Navy)

Before the labours of Leishmann and of Donovan were made public, Kala-Azar confounded with chronic malaria These two ailments have been classified to-day as two distinct diseases It is not absolutely improbable, however, that later researches may alter our conclusions and discover between chronic malaria and Kala-Azar, a correlation not admitted at present

It must nevertheless be recognised that these two diseases possess a nearly identical symptomatology, especially in the sub-acute or chronic The acute form, usually form of Kala-Azar proving fatal in 35 or 40 days, is rather apt to be mistaken for typhoid fever or typho-malaria This form, moreover, is less prevalent than the chronic form and particularly the sub-acute form

At the outset, it may be stated, in a general way, that Kala-Azar is characterised by fever and gastro-intestinal disorders In the secondary period, that of wastage, the chief symptoms are anæmia, splenomegaly with frequent hypertrophy of the liver Among complications often causing death may be mentioned pneumonia, gangiene of the cheeks, nephritis and hæmori hage

These symptoms are also found in chronic malaria, and it is not unleasonable to suppose that a treatment which is often successful in chronic malana may be equally efficacious in The latter disease, however, from its Kala-Azai greater gravity, may be expected to show a smaller percentage of successful cures than chionic malaria

Besides, we know that, in lymphadænia, the hypertrophy of the spleen is reducible by only one medicine, viz, arsenic, in the form of injections within the spleen

In a work the writer published some years ago and which was favourably noticed by Sn Patrick Manson, it was shown that the only remedy that appeared to have any chance of success in chronic malaria was arsenic

But it was found that, to be efficacious, this remedy should be administered in doses of at least one centigramme per day Such a dose, however, was often ill supported by the patient. obliging the physician to suspend the use of

Subsequently, after numerous experiments. recourse was had, in the treatment of chronic malana, to Ramalline, a French composition containing arsenic in the form of a compound of mineral and organic salts of arsenic composition offered the great advantage over pure assence of being supported without ill results by the patient

Each pill contains 1 milligramme (125) of arsenical salts, so that, by giving a patient 8 pills a day, at regular intervals, he is made to absorb about one centigramme of arsenic, that is to say, the efficacious dose

Relying therefore on the strong analogy already existing, from the symptomatic point of view, between Kala-Azai and chionic malana, it was attempted to treat Kala-Azai with arsenical Tests were accordingly made at the Chandernagore hospital under the direction of Dr Cheinel assisted by Di Aioul

Although so far only five cases have been treated, the results have been most encouraging

It is interesting to note in this connection that Di Jemma (of Paleimo), at the Congress of Pans of the 6th October 1912, recognised that arsenical preparations appeared to yield the most gratifying results in the treatment of Kala-

It is known that arsenic has a potent action in certain cases of anæmia, exceeding, in many from ferruginous obtained instances, that The experiments of Cannata have preparations moreover shown that, in Kala-Azar, the percentage of hæmoglobin is always reduced number of red corpuscles is considerably below This is also true of the cellular the normal efficiency, but no marked deterioration of the 1ed corpuscles 1s noticeable

It may therefore be expected that arsenic which is so successful in anæmia, will have a favourable effect in Kala-Azai and such indeed are the results obtained at the hospital at Chandernagore

A single instance might be cited A young gul, taken ill in 1911 was admitted to the hospital on the 23rd May 1912, suffering from The liver was hypertrophied, the Kala-Azai spleen extended as far as the umbilicus line was administered and, at the end of three weeks, produced a considerable improvement.

The liver and the spleen became normal, and the patient was discharged cured, and sufficiently recovered to resume her work

The cases treated at Chandernagore are doubtless not sufficiently numerous to warrant the assertion that a cure for Kala-Azar has been found in arsenic. But the experiments are certainly encouraging, and it would be interesting, from a scientific point of view, to carry them further

Medical men, in Assam where the malady is more rife than in Bengal, might, with advantage, make further experiments with Ramalline. If then results are not as favourable as those obtained at Chandernagore, one may hope at least that arsenic, which is so successful a remedy in chronic malaria, will greatly benefit Kala-Azar patients in consequence of its remarkable tonic qualities.

The writer cannot, however, advise the above treatment in the case of very young children, that

is, below the age of 9 to 10 years

# SANITARIUM TREATMENT FOR PHTHISIS IN A CIVIL HOSPITAL

By H 5 MAISON, MBBs (Lond), MRCs, LRCP (Eng)
CAPTAIN, IMS

AND

GAJAN SINGH,

SUB ASSISTANT SURGEON, South Shan States, Burma

Tublic Llosis especially pulmonary tuberculosis has in the past been regarded as unsuitable for hospital treatment, partly no doubt owing to a very natural dislike on the part of Civil Surgeons to having their wards infected, and partly to the prolonged period of detention necessary if good results are to be obtained. The widespread prevalence of the disease and certain advantages in the way of accommodation have rendered it possible here to ascertain how far, without danger to others, modern Sanatorium treatment is applicable to the ordinary type of patient seeking charitable relief in a Government institution, and in this paper we put forward the expensence gained during last 18 months as possibly for benefit to others interested in the

It is recognised on all hands that the ideal climate is one that allows of exposure to cool fiesh an at all times, without endangering the general health. The height above sea-level is, therefore of far less consequence than a small mean variation in temperature, or a light nainfall well distributed throughout the year Observations on the results obtained in a Norwegian Sanatorium only 25 feet above sea-level as compared with certain other mountain Sanatoriums bring out this point very clearly. Again comparisons of results can only be very general Success naturally depends on how far the condi-

tions associated with the onset of the disease can Sanatorium treatment with abunbe removed dance of fresh air, rest, and good feeding will naturally do very much more for the pauper; patient who has led a laborious life half-starved amid insanitary surroundings than for the wealthier class of European patients whose illness cannot be attributed to any gross disregard of The successful treatment of pulmohygiene nary tuberculosis is a long and wearisome business, both for the sufferer and those in charge The active co-operation of the patient himself is essential, and to that end the meaning of the treatment is to some extent explained at the outset, and, should the case on examination prove suitable, he is then required to submit for six months' treatment on the understanding that if he leave the hospital without permission he He is also wained as to will not be re-admitted the danger to others of spitting elsewhere than into the vessel provided, and finally the possibility of hæmoptysis, and of one or more relapses

We were fortunate at the outset in having two cases who rapidly responded to treatment, and in three months were back at work. A third case who refused the conditions, died in the bazaar four months afterwards, and this death at least impressed others with the futility of ignoring warnings. Finally, a charitable committee in sympathy with the subject, and aims of treatment is essential since to it one has to look for a liberal provision of varied diet, essential to success in treatment.

For purposes of treatment Pulmonary tuberculosis may be divided in two main groups, those in the febrile stage and those in the afebrile or ambulatory stage

As long as there is any fever, ie, the rectal temperature at any time in the 24-hours rises above 99° the patient is strictly (as fai as possible in the open an) confined to bed, as the only known means of controlling auto-inoculation which is evidently excessive The normal daily variation in rectal temperature seems to be about 1°, and to say that the temperature must not rise above 99° is tantamount to saying that the waking rectal temperature should not exceed 98°, and this is a point of paramount importance in prognosis in the type of pure tuberinfection under consideration "open" cases where there is a double infection do not necessarily conform to these limits

The temperature is taken four times during the day, particular attention being paid to the waking temperature. The pulse rate is noted at the same time, it will be found to correspond normally very closely with the temperature, acting as an excellent check on the latter as regards accurate recording. Several details with regard to this daily record require attention, the thermometer should be inserted into the rectum

for 4 inches, the time during which it remains should not be guessed, it should be taken with a watch, and the chart should be kept out of the patient's sight, finally it is well for the medical man to occasionally himself check the recorded results. We do not find it possible to form any opinion as to ultimate prognosis till the patient has been at least a month under observation. Patients dislike the procedure at first, but if due regard is paid to their feelings, they soon get accustomed to it, and there is no other way of accurately recording the slight daily variations which enable one to estimate progress

Fever is regarded as the evidence of the continued production of toxin, and of the absence of any real attempt at limitation of the disease locally. It is more accurate to say that fever is evidence of excessive auto-inoculation, of a persistent negative phase, and therefore of progress of the disease. The amount of auto-intoxication varies as the blood-pressure, and there is no doubt that the organism attempts to limit the toxin production by maintaining a low blood-pressure, and by the sensation of fatigue which seems instinctively to call for rest.

We drew attention in an earlier paper to the rapid collapsible pulse as typical of early phthisis, and so far is this true that in the absence of arterial disease a persistently slow pulse of good tension will absolutely preclude tubercular infection of an active nature

The stethoscope may reveal evidence of lung damage, but examination of the pulse will determine how far the lesion is active

The amount of fever as a factor in determining prognosis is of less importance than the extent to which it can be controlled by treatment

Fever is only one of many effects of the tuberculous toxin a persistently soft rapid pulse, eg, always over 80 while at rest though there may be no fever is sufficient to contra-indicate exercise of any soit

With the fall of temperature one generally notes however loss of cough and symptoms of malaise, and return of appetite with slowing of pulse rate and change in its character

Patients in this febrile stage are frequently (we except chronic cases of long standing) restless, they suffer from frontal headache, disturbed broken sleep, loss of appetite and obscure pains in the limbs

For such, a diet easily digestible, and arranged as far as possible in accordance with the patient's own wishes, is provided. It will be raiely found that an article of diet which is asked for, disagrees. At night abundance of sodawater should be available. A daily action of the bowels (using bedpan) is most important. Massage is useful where a prolonged stay in bed is anticipated, it will often stave off neuralgic pains in the limbs. The use of alcohol is very difficult

question, generally speaking we find it has to be a matter of individual experiment, the possibility of abuse is obvious, and yet in some cases it does act like a chaim. Champagne and sparkling wines are particularly valuable for European patients improving the appetite, enabling them to eat and sleep in a way that nothing else will do

Alcohol will remove often symptoms of exhaustion in the moining and at night will sometimes ensure unbioken sleep, in all cases it is worth trying. When alcohol fails, opium should be tried, we find paregoric can be taken over long periods in doses of minim xxx, without seriously affecting bowels or appetite in certain patient.

Finally when this treatment nigidly canned out and the temperature fails to fall after a reasonable time, it is always advisable to look about for a cause before deciding that the case is incurable First and foremost we have learnt here to attach paramount importance to the state of the mouth Apart from the comfort to the patient of having his mouth regularly cleaned, it is believed that the presence of organisms in mouth are frequently responsible for complications, but in addition they certainly impede digestion, and it is on his digestion that a phthisical patient has to a large extent to rely It is believed that attention to this point turned the scale in two patients who appeared at first to be doing badly, carious stumps were removed and the regular use of an antiseptic mouthwash insis-Constipation of course will keep up a ted on temperature, another point is change of position Some people do badly if the seclusion is too ligid, a little amusement of a harmless nature with a word or two of encouragement will work wonders

Direct similable even for a short time will raise the body temperature in tuberculous patients, and this is a point worth remembering when selecting the position of bed-ridden patient

In each case personal attention is the very essence of success, relapses are almost inevitable but if the treatment is persisted in are always temporary and their importance should not be exaggerated

### A FEBRILE OR AMBULANT CASES

Such cases are assumed to have reached the stage of arrest, and are convalescent as the result of the cessation of toxin production. In addition to measures calculated to raise the general resistance

(i) The auto-inoculation produced exercise, (ii) the injection of tuberculin

In essence the two things are the same, personally we believe that the proper use of tuberculin in the earlier stages the safer method of conferring immunity

The question of permanent cure of a case of phthisis is most difficult, and perhaps at present

insoluble, and this being so it becomes necessary to create an individual test. All clinical experience goes to demonstrate futility of regarding an apparent disappearance of physical signs, or tubercle bacilli in the sputum as evidence of cure, and it is found most satisfactory to regard the patient's reaction to auto-inoculation as the best test of his condition

It is in the point that the apparently healthy but tuberculous patient differs most widely from the non-tuberculous individual. Repeated experiments made by us on healthy men show that ordinarily the rectal temperature after slight exertion does not rise above 99°. Severe labour will raise it temporarily to limits which vary with the severity of the labour and the physical condition of the patient

The normal rectal temperature in women is apt to be slightly higher than men. We have found temperature of 99 2° or 3 in apparently healthy women walking about, and performing the ordinary duties of life.

The time comes when after the temperature of a patient has settled to between normal limits for seven days, and the pulse has gained its normal tone, that he is allowed under supervision to take a short walk on the level over a measured Temperature and pulse rate are estimated before, and immediately after, neither should as the result of exercise rise above 100, both should drop to the normal limits within 1 hom, there should be no sense of fatigue, shortness of breath or giddiness Exercise which conforms to these conditions is beneficial and absolutely harmless The distance which can be walked slowly can be rapidly increased and other forms of exertions can easily be devised. men, hoeing in a cultivated plot in the hospital compound is convenient as being easily supervised

There is one further point a tuberculous patient will have fever and symptoms of illness at night long after he has apparently recovered his health by day. Disturbed sleep, slight local sweats on various parts of the body, and periods during which the pulse runs up without apparent cause, are all evidence of persistence of infection, and of good reason for caution

The injection of tuberculin may be commenced provided the case appears to be suitable, certain cases appear to be unsuitable for tuberculin injection, generally speaking where the amount of re-action to auto-inoculation, i.e., slight evertion appears to be out of all proportion to other features it will be necessary to proceed very cautiously. We use here New (Tuberculin B.E.) which has the advantage of being a real vaccine, if injected hypodermically into the gluteal muscle using alternate side review m.g. is regarded as the maximum dose to commence with. The actual dose must depend on the condition of the individual; it is fail better

to en on the safe side. A dose of 100000 mg. of died TB is, therefore, used at the outset, and the effect watched Where the dose has been in our opinion a proper one no febrile reaction follows and patients are unanimous in saying how much better they feel and soon express great faith in the vaccine This sense of well being following a proper dose seems invariable. The production of a reaction following dosage with tuberculin is still a matter on which it is unwise to dogmatise, and on this point we merely give the results of our own experience with patients here

In the case of tuberculosis one is introducing vaccine into an organism already crippled, and perhaps still being crippled by the previous action of toxin, a slight error in dosage may easily light

up the whole mischief again

We therefore avoid the productions of these reactions, the extent of which it is impossible always to foresee, as involving needless risk till such time as experiment, or wider experience clearly demonstrate their value.

We find it wises to allow at least seven days between each dose. In one patient a general febrile seaction was produced by sepeating a minimal dose within three days though the first dose had obviously been beneficial. This negative phase lasted ten days and the patient lost ground.

Once immunity is established, one can proceed rapidly to double the dose, one of 30000 m.g. can be followed safely by 10000 m.g. and then 1000, the effects being carefully watched.

Tuberculin administration by the mouth has been tried, it is not satisfactory in a civil hospital where it is found troublesome to ensure the necessary conditions essential to proper administration

It need hardly be said that tuberculin is most unsuitable for administration to out-patients Patients arrive from a distance generally with fever (and consequently a lowered opsonic index) and to inject tuberculin under such conditions is to provoke a prolonged general re-action (negative phase) which will not merely gravely affect the patient but bring discredit on what if properly used is a most valuable method of treatment.

We do not think it wise to regard cases as arrested unless they have been under ordinary conditions of life free from symptoms of illness for at least a year

Patients who have made satisfactory progress in the afebrile ambulant stage and can carry out the ordinary duties of life without a febrile reaction on discharge, are warned as to certain points in home-treatment, and are directed to present themselves once a month for examination. We have found this system so far work very satisfactorily. Patients seem to realise that the cure is probably not complete, and that whether it will eventually be so depends entirely on themselves.

# THE SANITARY REQUIREMENTS IN THE CONSTRUCTION OF A SLAUGHTER-HOUSE (ABATTOIR) IN INDIA

BY C C MURISON, FRCSE, DPH,
MAJOR, IMS,

Superintendent of Matheran

THL question of the requirements construction of an abatton in India on sanitary principles is very important, and this is especially the case when it is considered that large sums of money may be wasted in selecting a pattern a size, material for construction, and other details of an abatton not suitable to the special requirements of the place The literature on this subject at present is very limited, and so this article is written with the hope that it will to a certain extent give an idea as to the sanitary iequirements which should be considered before beginning the construction of an abatton must not be taken from this article that every sanitary authority should construct an abatton with all the 100ms of departments as mentioned in it as everything depends on what is necessary For example, it is quite workable in each place to combine the dressing and cooling rooms into one, and to do without other rooms such as the refigerator and the detained meat room in fact, in some small municipalities all that is necessary is to have a slaughtering yard and a combined dressing and cooling room and the whole place surrounded by a wall In all cases strict sanitary arrangements must be made With a view of not making this article lengthy, well established principles of sanitation and of sanitary engineering are not described, but only mentioned points to be considered when the construction of a slaughter-house is contemplated are -

I —WHETHER THE SLAUGHTER-HOUSE IS FOR CATTLE (INCLUDING BUFFALOES AND CAMELS) SHEEP (INCLUDING GOATS) OR PIGS

In India owing to caste prejudices, it may be stated definitely that slaughter-houses for cattle, sheep and pigs must be separate and distinct from each other. Still in some places the buildings for each need not be far apart, in fact they can be in the one compound provided they are quite distinct and separate.

### II —System of Building

There are three system of buildings to choose from and these are —

- (a) The Block system This is where all the buildings of the slaughter-house are under the one roof
- (b) The separate system —This is where all the principal buildings of the slaughter-house are quite separate from each other

(c) The combined system —This is a combination of the block and separate systems, that is the principal buildings of the abattoir stand quite separately from each other but are connected with each other by covered passages

The block system is not suitable for India owing to it not providing for sufficient free space and an around the several rooms which are absolutely necessary. Consequently the choice lies between the separate and the combined systems. This choice depends on the meteorological conditions of the place as regards rain and sun. Further, in all cases it is better to keep certain buildings apart from the others.

### III —SIZE OF THE SLAUGHTER-HOUST

In deciding this point one has to take into account not only the number of animals that are to be slaughtered but also on the size and number of the buildings which are going to be built

The question of the future expansion of the abatton should also be taken into consideration. No definite rule can be laid down for arriving at the number of animals that ought to be killed in each place as the meat-eating population of the different places in India varies a great deal.

The only rough way of working out the number of animals that will be required to be killed in each place is from the annual statistics of the animal killed in that place. The amount of floor and cubic space of the several rooms when required to be mentioned will be stated under that room.

### IV —CONSTRUCTION OF THE SLAUGHTER-HOUSE

This is very important and the sanitary authority concerned should make a point of building a good substantial and up-to-date abatton in preference to an inferior one. The subsequent repairs and alterations to the latter will in the end come to more than what the initial cost of the former would have been

The following are the general requirements of construction of the whole abattorr, and any special requirement or modification of these for a particular room or department will be mentioned under that 100m or department does not matter what kind of material is used The outside for the walls provided it is durable of the walls, in places with heavy rainfall, if of blick should be plastered over with cement and if of stone then pointing with cement is advised Several of the rooms will require to be done The internal surface of the whole verandahs abatton including the floor should be covered with a hard smooth, non-absorbent, impervious and durable material so as not only to prevent the absorption of blood, liquid, refuse and other kinds of fifth but also to enable the whole of the

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re fixed to the walls and MEAT ROOM asy to raise animals from These are also very necesavy animals These rails should be so arranged with on the same principle as ie, that is, there is a main it is connected by switches THE SAN rails), and on these rails CONSThooks, are placed HO crossbar is hung on to a sily be taken on the trans-DESTRUCTOR Br C of the abattor to another anging carcasses for any when it is being diessed ossbars should be numberin arrangement attached to TRIPESSARY a carcass when hung GUT SCHOTOSS bar and the hook, and ng removed from the hook can quite easily be trans-RUBBISH YARD hoist to the hook or vice remembered that the floor ly that of the slaughtero great wear and tear, and ng the requirements of the abattoir mentioned above hard substance and be floor the following points terrals for construction ongst numerous kinds of in order of durability for floors of slaughter-BUTCHERS ROOM OR ROOMS BLOOD DRYING ad stones such as granite ge in cement with cement LAIRAGE FOR CONDEMENED ANIMALS  $\mathbf{m}$ f the above, the question of ulaı place must be taken hould be smooth or rough ole abattor except that of ughtering yard should be hese two exceptions some ion "that the floor should n only it can be thoroughly s are of opinion "that a

To make the floor rough enough to efficiently prevent slipperiness, means that we are giving way to insanitary principles as then it becomes quite impossible to thoroughly clean the floor. Under these circumstances it is recommended that the floors of the lans and of the slaughtering yards should also be smooth. The slipperiness of the floors of the lans and of the slaughtering yards can be greatly remedied by sprinkling sand or dry earth over it, and this sand or dry earth to be daily removed and renewed.

# (c) Whether or not there should be a slope to the floor?

There is a great deal of difference of opinion on this point. Some of the authorities contend that a slope increases the slipperiness of the floor, while others contend that a very slight slope is necessary to enable the fluid material to drain away and that the slipperiness is not materially increased. It is recommended that a very slight slope to the floor should be given towards the inside drains or to the outlet channel or channels

Ventilation — (See under doors, windows and skylights)

Heating arrangements—The heating of some of the 100ms (carcass diessing 100m, office, laboratory, butcher's 100m) in certain parts of India during certain seasons is absolutely necessary. The best way of heating these 100ms on sanitary principles and on a large scale is to do it by hot water pipes conducted on the low in preference to the high pressure system. If this system is not possible then the 100ms just mentioned except the carcass diessing 100m can be heated by having ordinary fire places.

Artificial cooling arrangements—The majonity of the nooms of the abatton in most parts of
India during the summer months require cooling
The office and laboratory can be cooled by the
ordinary means of punkhas, fans, and tatties, but
the question is as to how to cool the carcass
dressing and hanging rooms. The best way of
getting over the difficulty is to slaughter the
animals in the afternoon and evenings, and then
keep the carcasses in the hanging room till morning when it can be transferred to the market. If
funds are available then the meat after cooling
can be transferred to the refrigerator

The cooling of the refrigerator requires special machinery, and there are three well recognised methods of producing cold and they are —

(1) By the expansion of an

(2) By the evaporation of a liquid

(3) By the evaporation of a volatile liquid

Water-supply —A good and plentiful pipe water-supply for an abatton is an absolute necessity. If the place has a good and plentiful pipe water-supply well and good, if not, then arrangements must be made for providing it, as it is quite

impossible to work an abatton on sanitary lines without it Further, if the proposed water-supply is not of good quality, then precautions such as filtering must be carried out before supplying it to the slaughter-house It has been shown above that the floor, walls, and perhaps the cerling of the abatton will require to be cleaned by a hose and consequently a good pressure to the water will be required not only for this purpose, but also for the flushing out of the drains and pipes From whatever source the water is obtained, it will have to be pumped up and stored in galvanised or baiff non tanks or preferably in tanks built in chunam and water and plastered over with cement These tanks should be placed well above the highest height required to be reached by the hose The question of extinguishing a fire by water must also be considered the tanks the water can by gravity be distributed to the whole abatton, and the pipe or pipes according to the requirements of each room or department should be laid on In addition it will be necessary for hot water-pipes to be laid on for the supply of hot water to certain parts of the slaughter-house The pattern of the boiler for the production of the hot water according to the local requirements will have to be decided on by the Sanitary Engineer

It is not absolutely necessary to have steam for abattons, but if the local sanitary authorities are of opinion that it is necessary then the question of a boiler and of laying special pipes must be considered

Sewage disposal —This greatly depends on the system of the sewage disposal of the place If the water carriage system is in force, then it 15 quite easy to dispose of the abattoir sewage by passing it into one of the sewers, and if not then the question arises as to what should be done Nothing very definite can be mentioned here as everything depends on the local conditions there is a plentiful supply of water, then the sewage should be removed through pipes as far as possible and there disposed of according to one of the regular methods of sewage disposal, and of these methods the biological system (septic tank) The effluent from this method 1s 1ecommended can be used for migation purposes

The biological systyem can be employed quite close (200 to 400 yaids) to the slaughter-house without being a nuisance. In some places the crude abattoir sewage is used for irrigation purposes, and under good supervision works well and without any sanitary defects such as the breeding of flies, mosquitoes or the production of

In small slaughter-houses and where the watersupply is very limited, the best way of getting rid of the sewage is to catch it in cesspools or in carts and to remove it in carts and then bury it in deep trenches and after a year or so sell it as manure The cesspools or carts should be located outside the abatton yard. The former should be large enough to receive the whole sewage, and should be well built in chunam and mortar and be cemented over

In these later cases all the drains must be open with oval bottoms and be well made in chunam and mortar and be cemented over and have a good fall

Buildings—In most of the modern slaughter-houses in the United Kingdom the undermentioned necessary and additional buildings are to be seen in an abatton, and there is no reason why in a big public abattor in India the same should not be provided, and further, an encouragement should be given to the development of the various offensive trades connected with a slaughter-house and thus be a source of income towards the revenue of the abatton

The necessary buildings are —

1 Office of one or two 100ms according to requirements
2 Chokidars' quarters

Need no special comment

- 3 Laborator y is very necessary for bacteriological and microscopical examination of suspected tissues and organs, and also of the excreta and blood of live animals. The number and size of the rooms for the laboratory will depend on the local requirements. It is advisable to build the laboratory near the room for condemned meat, but still in a small slaughter-house there is no objection to build it off the office. It should be fitted out with a wash-hand basin and sink connected with hot and cold water pipes.
- Butchers' room or rooms—These are very necessary for the butchers to wart in, to change then clothes and also for other purposes of then special wants If this 100m is not provided then the butchers are apt to make use of other parts of the slaughter-house and this practice is quite insanitary The size of the room or 100ms will vary according to the possible maximum number of butchers that are to be accommodated at the one time and so it can be worked out on the principle of allowing each butcher a minimum floor and cubic space of 40 square feet and 600 cubic feet respectively These 100ms should be provided with lockers in which the butchers can keep then change of clothes

In addition to this room or rooms special rooms or yards for washing and bathing should be provided, and further hot and cold water-pipes should be laid on and bathing and washing plinths and sinks erected

5 Stendser or large pot for boiling clothes including a special place for washing clothes—
It is absolutely necessary from a sanitary point of view that butchers should wear special clothes whilst working in the abattor. These clothes after each day's work should be washed and then sterilised by being put into boiling water or into

a steriliser, otherwise the butchers are apt to wear very filthy clothes while at work, in fact cases have been known where the butchers have not even had then working clothes washed for months and others have worked in the clothes which they wear at home

6 Larrage—Two sets of lanage (sometimes called Pound) are necessary—one for healthy animals to be slaughtered and the other for animals which are diseased or suspected of being diseased. On sanitary grounds the two sets of lanage should not only be kept quite apart from each other but also from the other buildings of the abattor. If the lanage communicates with the chief rooms of the slaughter-house then there is a danger of smells passing from the former and affecting the meat.

The lanage for healthy animals should consist of a series of pens, and each pen should be placed at the disposal of one butcher so that he may be able to lock in his animals and thus have charge of his own animals

The lanage for diseased animals should consist of only one or two pens, and the animals put into it should be in the charge of the Slaughter-House Superintendent and thus prevent a butcher from changing the suspected animal by a healthy one. The pens should consist of a shed with an open yard in front of it, so that the animals in the rainy and sunny weather will be able to go into the shed and at other times can remain in the open yard.

The best way of constructing the lanage is to have a long shed with walls about ten feet high on three sides, and above this wall have non bais from two to three feet high up to the roof these walls have a sufficient number of windows which should, in addition to having shutters, be baned Divide the shed into a series of compartments side by side by walls  $(2\frac{1}{2})$  to 3 feet high) and above these walls have non railings (5 feet high) with the upper end of the railings sharp pointed The combined height of the wall and railings ought to be about  $7\frac{1}{2}$  to 8 feet will appear to be rather high for sheep, but the real object in making it high is to prevent people from stealing sheep by pulling them out over the Have a similar wall and railings in front of the yards and here place the gates floor should slope to the two sides where very shallow open drains should be placed, and the latter should gradually slope and drain into an open drain with oval bottom lunning along the back of the larrage Each pen should have in the open yard and not in the shed a drinking trough made of some material which cannot only be easily washed but also disinfected A trough dug out of some hard stone is as good as any Some authorities recommend enamelled non or metal troughs, but the objection to these is that the water in them gets hot very easily in the

hot weather Cold pipe water should be laid on to each pen so as to be able to fill the trough and also to flush out the drains and hose the floor The minimum floor space for large and small animals should respectively be 20 and 10 square feet per animal

7 Slaughtering yard—This is the place where the animals are slaughtered, and to arrange for wet and dry weather it should be so constructed that a part of it has a roof and a part of it is without a roof

The walls of the latter part should be about 7 feet high and of the former at least 12 feet high, and above this have non bars from 2 to 3 feet high up to the roof

Hot and cold water should be laid on

There should be an open drain with an oval bottom all round the yard, and should be from 12 to 24 inches away from the wall according to the size of the animal to be slaughtered

The size of the drain should be about 6 inches deep and 9 inches across the top for small animals, and 9 inches deep and 12 inches across the top for large animals

These drains should have a fall towards one corner of the yard from where they should continue on as a pipe through the wall, then a trap and then an open diarror pipe. The floor of the yard should have a very slight slope from the centre to the drain all round.

The animals should be slaughtered over the drains and the blood, if required for trade or garden purposes, should be caught in special vessels otherwise it should be allowed to go into the drain. The vessels for the blood must have proper and closely fitting covers

The animals, if properly slaughtered, will not be required to be kept in this yard for more than a few minutes, and so it is not necessary to fix a definite floor space but a large enough yard which will allow plenty of room must be provided

8 Slaughtering yard for diseased animals— This should be more or less on the same principle as the ordinary slaughtering yard and is necessary in all big abattors but it need not be very large

The carcasses should also be dressed in this yard

Carcass dressing room —This is the room where the carcasses are to be dressed that is to Plenty of hot be skinned and disembowelled and cold water should be laid on The floor space necessary is 50 square feet for sheep and goats, 70 square feet for cattle and 100 square Pigs require special arrangefeet for camels This process of for being scalded scalding is usually carried out in scalding vats by steam and the steam rising from the vats is caught in special funnel shaped ventilators and taken up through the roof The scalding can be done in boiling water but not so efficiently pigs after having been scalded are scraped and

then diessed There should be an open drain with an oval bottom about 6 inches deep and about 6 inches away from the wall all round the room. This drain should have a fall towards one place and from there it should continue on, as a pipe, through the wall and then a trap and then an open drain or pipe.

10 Cooling room—This is the room in which the meat may hang till cool or required by the butcher. If the meat is to be transferred to the refrigerator then it must hang in this room till cool, otherwise a hot carcass will raise the temperature of the refrigerator.

As in the case of the calcass dressing room it should have a diam all found the foom, but the size of it need not be more than 3 inches deep

11 Refrigerator —This is very necessary for all medium and large sized slaughter-houses as in it the butcher can keep not only meat in reserve for emergencies, but also for a day or two and thus prevent tough meat from being This last is a very important point to be considered where good gram-fed meat is sold to wealthy people in the hot weather gerator must be so constructed that the inside of the walls, ceiling and floor should consist of material such as wood which is a very bad At the entrance of the reconductor of heat fingerator there ought to be a small room built on the same principle as the refrigerator and the air of this room should also be cooled this small room the air of the refugerator will not directly communicate with the outside an and so the temperature of it will not be greatly raised when taking meat in and out of it

12 Weighing shed—Between the cooling 100m and the refrigerator a weighing shed should be provided, and all meat as it leaves for the market must be weighed and a record kept of it for several reasons

13 Fly-proof carts—These are very necessary for taking the meat to the market, and separate carts should be provided for mutton and beef

14 Detained meat room—This is for the keeping of suspicious meat about which, perhaps, a definite decision is required from the Medical Officer of Health or from the butchers medical expert. The butchers often question the opinion of the Meat Inspector or Slaughter-House Superintendent, and so before allowing the meat to be passed on to the room for condemned meat where it is likely to become affected by diseased meat it is kept in this room. After the inspection, the meat, if diseased is passed on to the condemned meat room, and if not, it is taken to the refrigerator or to the market, and if a refrigerator is not available then to the cooling room.

15 Condemned meat room —This is absolutely essential in all slaughter-houses of any

importance, as in it all the diseased meat and organs should be kept till iemoved to the destructor

16 Boiler-house with boilers — This is necessary for the supply of hot water to the abatton, and if necessary, steam for scalding the vats for sterilising clothes of the butchers and for other purposes according to the local requirements

17 Incinerator or destructor of some kind is necessary for the destruction of the condemned meat, offal and other kinds of abatton rubbish

18 Privies — These are necessary for the establishment and should be well away from the chief rooms of the abatton Good up-to-date privies should be constructed

19 Rubbish yard—This is necessary for the collection and storing, till removed, of the dung, the contents of the alimentary canal and other rubbish of the abatton. This yard should be so constructed as to have an impervious and non-absorbent floor and walls, and if possible be made fly-proof. In small abattons the rubbish can be collected in well-constructed and fly-proof rubbish bins or carts. From the rubbish yard or bins the rubbish must be taken away in well-constructed and fly-proof carts, motors, trollies or railway trucks and sold for manure

If a good incinerator or destructor is available, then the rubbish as stated above can be destroyed

- 20 Offensive trades If offensive trades are to be carried on, then buildings according to the requirements must be provided and some of these are
  - (a) For blood drying(b) For cuing of hide

(c) For fat and tallow melting

(d) For preparation of tape and gut scraping

If offensive trades are not to be carried on then special accommodation must be provided for the collection of hides, hoofs and offal. From here what is required by the butchers is taken away by them, and the rest is removed to the incinerator or destructor or taken away with the abatton rubbish

The accommodation for all of these must be on strict sanitary principles as detailed above

21 Enclosure—There should be a wall round the abatton with one gate and thus have ingress and egress well under the control of the superintendent

# V -SITE IOR A SLAUGHTER-HOUSE

This is a very important question, and before one can definitely decide upon a site, several points have to be considered such as (a) the prevailing wind, (b) the proximity to the meat market, the cattle market, the railway station, the docks and to a good water-supply. (c) the sewage disposal, (d) other local conditions viz, the position of the yard and of the respective buildings of the abatton to each other and to the

town, the approach to the slaughter-house, and also the means of access to the abattorr. essential on sanitary grounds for the slaughterhouse to be on the outskirts of the town and more or less leeward of it as regards the prevailing In fulfilling this condition the abattoir if possible, should be near the meat market, and cattle market, as otherwise, perhaps the price of meat may become excessive on account of the cartage of the meat from the abattour to the meat market or the taking of the animals from the cattle market, 1ailway station, docks, and from other places where the butcher buys them to the abattoir. The proximity to a good and plentiful water-supply in places which are not supplied by pipe water is very important The question of the slaughter-house sewage disposal is also of great consideration on sanitary grounds in places where there is not an efficient water carriage system of the town sewage

The position of the yards and of the respective buildings to each other and to the town should be such that the minimum amount of nuisance will be caused not only to the town but also to the abatton. These positions can be well seen in diagrams. Nos. 2 & 3, in which the prevailing wind is shown by an arrow.

A slaughter-house should be on raised ground at any rate it should not in any part be below the surface of the adjoining ground. This latter is difficult to carry out in a hill station, but still a great deal can be done to overcome this by excavating the earth on the hill side and by constructing a masonry wall against the hill

The approach to the abattour should not as far as possible be on an incline of more than 1 in 4 (as laid down by the Local Government Board of England)

# ACUTE YELLOW ATROPHY OF THE LIVER

BY C H SMITH, MD, FROS, CAPTAIN, I MB

Owing to the extreme rarity of this disease it is hoped that the description of the following case will be of some interest

The patient, a Gurkha rifleman, aged twentysix, was admitted to the regimental hospital, Kila Drosh, Chitial, on 1st January 1913, with the following history—

Seven years previously he had been in hospital seven days suffering from "fever" Apart from this he has had no other illness. For two weeks before the present illness he has been feeling unwell, and he reported sick ten days ago saying that he had fever. He was detained in hospital a day, but as nothing abnormal could be discovered he was sent back to the lines. Although feeling somewhat unwell, he was quite able to

do his work up to the day before admission to hospital On the day before admission he became sleepy and stupid and came into hospital on January 1st, in the following condition —

Patient is markedly jaundiced, the whole skin and conjunctiva being deeply pigmented are signs of a marked toxemia, distinctly stuperose, the pupils are widely dilated, and the pulse is infrequent being forty-eight to There is slight cedema of the feet the minute There is no enlargement and over the sacrum of the spleen or liver to be made out The other organs appear to be normal Constipation is present, but a large enema resulted in the passage of a clay coloured stool No urme has been passed since admission to hospital amination of blood films show an apparent increase in the number of leucocytes poliomorphonucleai and large mononucleai

January 2nd — The case is suspected to be one of acute yellow atrophy of the liver and a careful examination of the liver by percussion shows the following — In the imple line the liver dulness instead of being

In the nipple line the liver dulness instead of being at the sixth rib is only found at the seventh. And on percussing down towards the costal margin the stomach resonance is found, to light percussion, at the eighth rib. There being only about one and a half inches of absolute liver dulness in the nipple line. The patient passed urine in the night which on examination shows the following characters.—

Clean
Slight deposit
Specific gravity, 1016
Bile present
Reaction acid
A very slight trace of albumen
No sugar

Microscopic examination of the deposit shows the presence of a large quantity of uric acid crystals, a few epithelial casts, and a few crystals of leucin. No tyrosin crystals present. The patient is now comatose, and the cedema of the legs and over the sacrum has increased

cedema of the legs and over the sacrum has increased January 3rd—The coma has deepened, the breathing is now stertorous, and there are coarse rales to be heard all over the lungs—There is some bleeding from the mucous membranes of the nose and mouth

Patient died at 1 P M

### POST-MORTEM EVAMINATION

A partial *post-mortem* only was allowed, so the abdominal viscera alone were examined

All the tissues are deeply bile stained, opening the abdomen considerable clear bile stained fluid is present in the peritoneal cavity. The peritoneum is healthy. The liver cannot be seen having shrunk away up under the costal margin.

Liver—The liver is very much decreased in size, the weight being only 11b 14 ozs. It is pale in colour, and the whole right lobe is studded with raised yellow bosses varying in size from that of a pea to that of a walnut. The left lobe has two or three similar bosses on its lower surface, but the rest of the left lobe is fairly normal except for its pale colour. On section the whole liver is much paler than normal with yellow patches from the size of a pea to that of a walnut scattered through its substance. There

are not areas of injection to be seen. The liver in consistence is fairly firm. The gall-bladder is empty of bile and seems to be normal.

Spleen —The spleen not enlarged, weight

 $5\frac{1}{2}$  ozs

Kidneys — Some cloudy swelling, otherwise normal—

Weight Right  $4\frac{3}{4}$  ozs , Left  $4\frac{1}{2}$  ,

The rest of the abdominal viscera appear to be normal

In conclusion, it might be remarked that this seems to have been a very typical text-book case. The most striking feature of the case was its acuteness,—on December 31st the man was doing his work, he died on January 3rd. The non-enlargement of the spleen and the leucocytosis seem to be exceptional. The case was afebrile throughout. The patient vomited once on the day of admission but apart from this there was no history or signs of any gastro-intestinal disturbance.

# A Mirror of Hospital Practice.

# CONTROL OF THE EYE IN CATARACT OPERATIONS

BY F W SUMNER, BA MB (Cantab), FRCS (Ed),

Civil Surgeon, Falchgarh

The operation of removal of the catalactous lens in its capsule is one that, thanks to the pioneel work of Lieut-Colonel Smith, IMS, founded on his vast and immitable experience of more than 25,000 operations, is, in India at any late, rapidly supplanting the old capsulotomy operation

Granted a successful result, and by this I mean the complete removal of the capsule with the lens, no one can compare the absolutely clear vision resulting from this operation with the more or less hazy vision resulting from the capsulotomy operation for the remaining capsule in the most favourable cases causes some haziness of vision

The proof of the pudding is in the eating, and one has only to note the centres where most cataract operations are performed, and one will find that it is at those centres where the intracapsular extraction is done

No one is quicker to appreciate the best results in eye surgery (as in all surgery) than the native of India, and he will travel far to get his operation done by the civil surgeon of his choice, his choice being entirely based on the operator's results

The different types of cataract, the method of extraction requisite for each type, the after-toilet of the eye, the preparation of the eye for operation, the treatment of certain conditions which

# CONTROL OF THE EYE IN CATARACT OPERATIONS.

Br F W SUMNER, BA, MB (Cantab), FRCS (Ed),

Civil Surgeon, Fatchgarh





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may follow the operation whether extra-capsular or intra-capsular are most admirably and fully described in Colonel Smith's work and all ophthalmic surgeons—and every civil surgeon in India does cataract operations—must acknowledge the debt of gratitude owed by the ophthalmic world for the perfection of an operation which had fallen into disrepute through the large mortality of eyes it entailed, whereas now—in India at any rate—we find the lens removed in its capsule with as little fear of danger as obtains in modern abdominal surgery

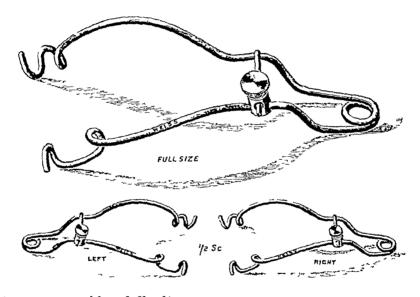
There is, however, too great a tendency for the Smith school of operators to band themselves together in a mutual admination society and say "Oh yes you imagine you do Smith's operation but you cannot do it properly if you have not seen him do it and done it under his supervision"

It is to help the poor unfortunates who are not in this happy band, to say nothing of those who are, that this article is written correctly holding the eye may have disastrous consequences

Driven by these disadvantages I have evolved a means of control of the eyelids requiring no skilled assistance and making it impossible for the most nervous patient to either move his head or squeeze his eyelids

On one occasion at an outlying dispensary, and in the absence on casual leave of the medical officer in charge, I did the intra-capsular operation on five cases with perfect results with the help only of a compounder of two years' service who had never seen an eye operation.

Smith in his book emphasises the necessity of a skilled assistant and states that assistance at some 100 extractions is necessary before the requisite skill is acquired during this training the percentage of indifferent results naturally is much higher and when, as frequently happens, the exigencies of the service do not allow one to have the services of the same man for any considerable



The one and often insuperable difficulty in removing a lens in its capsule according to Smith's method is the necessity there is to have at hand a skilled assistant to take charge of the eyelids in order to prevent the patient making use of his orbicularis oculi muscle, and thus making pressure on the globe and squeezing out vitreous, according to Smith's method the upper lid is held well off the glove by means of a blunt hook held vertically between the finger and thumb, the remaining fingers holding the eyebrow well back the lower lid is pulled well down by the other thumb

It is not an easy thing to do, if the patient's skin is greasy the assistant's hold is liable to slip the assistant's hands are liable to hamper the operator

Not only does the assistant take charge of the patient's eyelids but he also takes charge of the operators reputation for the least flaw in

period, it proves disastious. The method of control of the eyelids now under description is as follows and as shewn in the diagrams

The handle of the speculum has a curve to accommodate the index finger, the ball of the thumb rests on the spring; the portion of the upper blade which slips under the eyelid is narrower and projects under the lid much further than in the orthodox speculum

For the corneal incision it is introduced and used as an ordinary speculum except that the outer edge of the upper eyelid must be held back with a blunt hook to prevent the possibility of the knife touching and being fouled by it

A different speculum is required for each eye and a smaller speculum for use with very small or children's eyes. They are all of the same pattern. The assistant now holds the speculum between the index finger and thumb taking a firm grasp of it the other fingers lie against the side of the face.

<sup>\* &#</sup>x27;Treatment of Cataract' by Smith

<sup>†</sup> Sumner's Cataract speenlum made by Messis Weiss, London

pressure of the thumb on the spring end of the speculum acting through the index finger as fulcrum tilts up the eyelids to whatever intent is necessary. The assistant's other hand is spread out over the patient's head and, the eyebrow having been well drawn back, his thumb presses against the upper edge of the orbit.

By flexing or extending the wrist the upper blade may be made to slide under whatever portion of the upper lid most exposure is necessary according to the direction the patient rolls his eye.

By pronating or suprnating the forearm the correct amount of 'lift' of the eyelids off the eyeball can be obtained the correct amount of the upper lid is enough room to clearly see the forms where the patient may not roll his cornea out of sight, the lower lid is to be held just off the eyeball, with a bad squeezer the lids should be held well off the eye

The assistant stands at the side resting his elbows on the pillow on which the patient's head lies, there is no strain in the position of his body, arms or hands. The operator stands at the top of the table bending over the patient's eye, the patient's head should lie on a very flat pillow and the top of his head be flush with the top end of the table.

When the speculum is introduced the best amount of separation of the blades (and of course of the lids) is found by raising the lids off the eye and then screwing down the pin to fix them, this amount of separation is generally less than the possible amount of separation of the blades when resting on the eye the eyelids not being raised

# EXTRACTION OF THE LENS IN ITS CAPSULE

By F F STROTHER SMITH,

CAPT, IMS,

Allahabad

Captain Nessield claims many advantages for the modification of the Jullundar operation which he introduces. These seem to me to be of more than doubtful advantage. This is my excuse for reviewing them. In the first place, I am sure that all of us who have experience of intra-capsular extraction will compliment him on his results—4 cases of slight escape of vitreous in 270 cases and his last two hundred cases without a single case of prolapse of iris in which he did a basal midectomy and in which he made a conjunctival flap

A basal indectomy is what we know as a button-hole!! We assume that these results are on cases non-selected but taken rough and smooth as they came. These results are absolute perfection—results that many of us are not ambitious enough to expect to have

As regards the issues —Referring to the Juliundar operation he uses the stereotyped phrase

(so frequently used against it by capsulotomists) which has no basis on fact "so dangerous an amount of pressure was found to be essential" I have now done between 2 and 3 thousand cataracts by this method, and I have never once seen anything deleterious from the pressure used, and I have seen about two thousand roughly done by others at Jullundar and Amritsar and the same applies. It is surely more consistent to deal with facts than with theories based on the absence of skill and knowledge

Captain Nesfield discusses why the semi-soft mature lens is not favourable for expression because it is readily indented and other explanations, why justify his dislocator? As a matter of fact, the type of lens just mentioned is the simplest of all varieties to dislocate by external pressure to those who know how to do it; besides it is the most dangerous of all to use his dislocator on as its capsule is so very delicate that any rough handling will buist it He lays stress on his procedure that by it the entire lens can be extracted without nidectomy and with a conjunctival flap as if by the Jullundai method this were impossible My experience is that it is as easy to do it without an nedectomy as with one and with one incision Colonel Smith has always laid down this and that it is quite easy to do it through an Captain Nesfield deals much in opium pupil possibilities and probabilities" In a matter in which there are now unlimited facts which are certainties, and these latter would, I think, be He says, "finally it more interesting to us all is always possible that strong external pressure and the consequent nritation of the eyeball may set up mitis, for mitic pigment is frequently detached and as the pressure is useless in three out of every four cases I have now altogether given up trying to dislocate the lens by the Smith The certainty of mitis not followmethod!" ing the Smith method is known to every one To dislocate the familiai with that operation lens by the Smith method is quite simple personally have had no difficulty in learning how The fact that Captam Nesfield can only dislocate 25 per cent of the cases by external manipulation indicates that he does not know how The observation that prolapse of mis did not follow accidental button-holing of the mis in the simple operation as often as when the mis was left intact was made by a Boston Sur-It is now known as Hessis' operation and is, Libelieve, being fairly generally adopted over It is on its trial in some of the large Colonel Smith, I understand, is clinics in India making a button-hole with a stab wound of a Critchett's knife after the lens is extracted and the mis replaced

Captain Nesfield makes his button-hole before he extracts the lens, he does not mention how often the budge of his gets astude the outcoming lens and causes in these cases almost insuperable difficulty

We have always to remember that the patient we are operating on is sensitive when the nis is interfered with and apart from this is generally

far from being obliging

Captain Nesfield does not use an assistant to steady the eye when making the button-hole Those of us who have seen a patient free to move his eyeball thus when the iris is caught give a quick violent roll and occasionally his head a roll along with it and thus dislocate a large section of the iris, prefer the use of an assistant

Captain Nesfield says, "secondary cataracts from bursting of the capsule I have only had to needle a few cases" As concerns his dislocator and the use of it, it would be interesting to know how many capsules he lacerated with it attempting It is one of many dislocato dislocate the lens tors which came into existence especially in America and Germany with much noise, but which have died and are dying very peacefully

I saw the instrument of Elschnig of Piague used many times on the Continent and it never

once succeeded in dislocating the lens

The Jullundan method implies the introduction of the minimum number of instruments into the eye, which is an advantage Captain Nesfield's dislocator implies the passing of an instiument between the iris and the lens, practically without touching either, as if the mis is touched the patient is very liable to wince and thus complicate the proceeding If the lens is touched with the slightest weight, in many cases the capsule will be lacerated The wincing of the patient is also very liable to cause the laceration of the capsule When the instrument has been got into position, to sweep round the suspensory ligament Have we any guide to indicate where that position is? We are working in the dark It may be on the lens, it may be on the suspensory ligament, it may be up against the ciliary region, in which case the patient will certainly wince and complicate Captain Nesfield professes to lacerate the suspensory ligament without lacerating the hyaloid on which it rests and to which it is more or less attached How does he do it? He calls all this simple I call it supremely complicated and difficult, much more so than dislocating the lens by external manipulation.

Captain Nesfield says his sloping valvular incision prevents a prolapse of the iris should the patient sneeze, etc

I think most men will agree with me that nothing will prevent a prolapse when a strain is put on the eye He says that a conjunctival flap and a peripheral incision makes a small prolapse of the base of the iris quite inoffensive My observation is that a prolapse of the base is often of grave ulterior significance. A prolapse

of the pupillary margin of the iris is of very He says that much less ulterioi significance this peripheral incision and conjunctival flap are absolutely necessary, when no iridectomy is done

The fact is that other men do not find that it is absolutely necessary The conjunctival flap is a source of bleeding obscuring the field and If the capsule bursts, thus delaying proceedings as may happen, it is almost an insuperable difficulty in the way of getting hold of the burst It is in the way of adjusting or replacing the iris and it has to be very carefully adjusted itself, otherwise it may be left folded between the edges of the wound A mere prolapse of mis does not become septic and thus does not require to be covered up with a conjunctival flap If there is a prolapse of mis we want to get fan at it to cut it off and not to leave it bound beneath conjunctiva-a conjunctival flap is thus a great additional source of trouble with no compensating advantages His additional reasons for a sclero-corneal in-Take them as he eision are each one invalid raises them

The radial incision does not tear the capsule, so his theory is not correct. As regards the increased liability to piolapse of iris in a radial incision we want facts to prove this experienced men hold the reverse after trying He says no astigmatism follows the peripheral incision

Astigmatism follows any incision, many men of large experience find that least astigmatism follows a radial incision The reasons for this are well demonstrated by Captain McKechnie at the Bombay Medical Congress in a paper worth rereading and re-studying He says the iris usually My observation on the requires no replacement contrary has been that no part of the whole operation should be done with more care and delicacy than the replacement of the iris whether an iridectomy has been done or has not been done It should be carefully detached from the scleral flap, to which it has a habit of sticking sticking to it the pupil may look central at the time of operation, but will be found later on to be permanently attached to the scleral flap

Iris theories ie a button-hole are not sufficient to cover the ground he claims He uses Henderson's theory that the cut iris does not ever cicatrise This fact requires very much microscopic proof before surgeons will admit that the tissue of the iris is the one grand exception, to all other tissues of the body in not cicatrising when wounded The theory follows that the lymphatics of the cut iris remain open and diain away the aqueous humour and thus prevent the increase of tension associated with glaucoma This is the most recent theory on glaucoma The glaucoma theories are mostly suffering from inanition. He thus claims that a button-hole is a safeguard against

post-operative glaucoma. As a matter of fact an irridectomy has not been found to be a safeguard against post-operative glaucoma though it opens up more lymphatics than a button-hole

As to after-treatment The daily dressing and the use of drops that Captam Nesfield indicates seems to me far too much interference with a surgical wound and is the best method of courting prolapse of the iris It is necessary in the capsulotomy operation in which iritis is frequent, but it is not necessary in the intra-capsular in which uitis is so rare If the iris prolapses it is better left alone for ten or twelve days till the If sepsis is taking place wound has united The principle of surgical nothing will stop it rest applies to a cataract wound as well as to any other wound

He claims as an advantage that his method is invaluable when the lower portion of the irrs is adherent to the capsule because the adhesions are readily separated by the wire

As a matter of fact, these adhesions are never strong and extensive adhesions very readily give way to external manipulation alone.

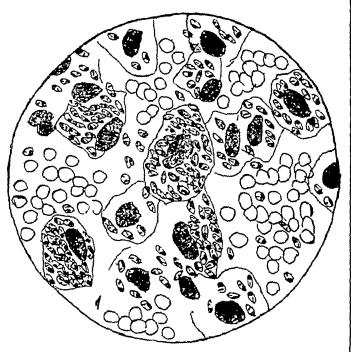
Glaucomatic cataracts are easily removed by any method. What is required is judgment to know the class of glaucomatic cataract which is likely to be followed by expulsive hemorrhage.

### A CASE OF BAGDAD SORES, SHEWING AN APPARENTLY LONG INCUBATION PERIOD.

BY R S KEELAN,

Military Assistant Surgeon

THE following case may be of interest, on account of the extreme length of the incubation period, and of the



rarity of the affection in these parts. Nazii Mii za Mahommedan male, Shiah, age about 55 years, resident of Lucknow city. He has been all his life time in

Lucknow, going once only on a pilgrimage to Bagdad about a year and a half ago

History.—The patient stated that he always enjoyed perfect health until about three months ago, when he noticed a few itching papules, "like mosquitoe bites" on his hand and legs. After a few days these began getting larger, and he noticed signs of ulceration in them, with the formations of layers of scabs. He was in the habit of removing the scabs and applying various local remedies, but with no appreciable benefit. He eventually came to the Balrampore Hospital out door department on the 3rd November 1912

Condition when seen—There were three large sores, one on the dorsal surface of the left hand and one on the front of each thigh, each about an inch in diameter and covered with several layers of scabs. On removal of the scabs a shallow ulcer was disclosed, congested at the periphery, with an irregular surface and jagged edges, and discharging a thin samous fluid. There was no pain, but troublesome itching complained of in the ulcers. The sore on the hand was scraped and a smear taken from the scrapings and stained with Giemsa shewed numerous L. D. bodies both in the white blood cells and in the surrounding plasma. There was a marked leucopænia

Treatment—The ulcer on the hand was well scraped, and touched with pure carbolic acid, and dressed daily with boric ointment. Although the patient has attended regularly for about two months, the ulcer shews very little signs of healing up. The ulcers on the thighs have not been touched.

I report this case through the kind permission of

Major Birdwood, IMS, Civil Surgeon, Lucknow

### A CASE OF OVARIAN FŒTATION

BY F C. FRASER,

CAPTAIN, IMS,

Govt Maternity Hospital, Madras

THE following case is of great interest both on account of the difficulty of its diagnosis, on the length of time to which the ectopic gestation went without impturing, and lastly, its rarity. (Many obstetricians deny that ovarian feetation ever occurs, but why it should not do so I am at a loss to say)

The woman was admitted with an abdominal tumour which she herself had noticed for about twelve months. She believed herself to be pregnant, but it was difficult to see upon what grounds she based this as she stated that her periods had been quite regular up to date. She had noticed no quickening, nothing in fact save the steadily growing tumour. She was a multipara and a little milk could be squeezed from the breasts, a point of no significance in a multipara

When admitted she was screaming with pain, but her general condition was good, the abdomen being fairly lax and the pulse full and slow

On palpation, a large, centrally placed tumour was made out, moulded below into the pelvis and rising out of it as far as two inches above the umbilicus, the latter, however, was much displaced upwards and as may be seen by a reference to the photo, was considerably nearer the ensiform

# A CASE OF OVARIAN FŒTATION

BY CAPTAIN F C FRASER, IMS,

Govi Maternity Hospital, Madras



Postrait of the abdomen of a woman who was thought to have an abdominal tumour simulating pregnancy—cystic fibroid or ovarian cyst were possible diagnoses. Note position of umbilicus which points to ovarian cyst. On opening the abdomen it was found (only after fleeing it from adhesions) that the tumous was a six and half months fætus in an extrauterine sac. Sac was quite central and uterus was stuck on its anterior surface. Fætus was dead.



Ectopic sac, anterior view A probe has been passed into the uterus which is seen fixed to the front of the sac

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than the pubes The uterus could be felt perched upon the front of the mass

The tumour was fairly smooth, cystic in parts but hard in others, especially on the right, no fœtal heart could be heard The shape of the abdomen except for the situation of the umbilicus, iesembled a seven months pregnancy, and I took a photo of it as one of "tumour simulating pregnancy" I remark on this as the subsequent operation revealed the fact that it was not a tumour but an extra-uterine gestation simulating normal pregnancy Abdominal section was performed the following day, and upon opening the abdomen, a cystic tumour was disclosed, densely adherent to the omentum and After much ligaturing off, intestines tumour was freed except below. At this stage of the operation, the cystic mass was accidentally punctured and a dark grumous fluid began to Upon widening the puncture, the knife came down on bone and revealed to our great surprise that we were dealing with a fœtus which on removal was found to be quite six and a half to seven months old It had a dense clothing of lanugo which was easily removed as the fœtus was partially macerated Dense patches of the lanugo may, in the photo, be seen on the right arm and leg

The uterus was so much part and parcel of the sac that hysterectomy was performed The right tube and ovary were normal, the left tube enormously lengthened ian across the sac, its lumen from uterine to fimbriated extremity was patent and normal so that it was clear the gestation had not originated in it The cavity of the uterus was but little enlarged, the left ovary was quite absent and was evidently spread over the walls of the sac Pieces of this have been sent for section to see if ovarian tissue can be detected, but I think there can be no doubt, but that this is a genuine case of ovarian feetation The woman made an uneventful recovery

# AN UNUSUAL CASE OF ENTERIC FEVER

BY E C TAYLOR, MB,

Civil Surgeon, Parachinar, N W F P

R. G was admitted to Hospital at Minanshah on August 26th, 1910, on the tenth day of his illness. He had an acute attack with all the classical signs of enteric fever, hyperpyreva, spots, hemorrhages, meteorism, bronchitis and the typhoid state. This continued till the third week in September and was followed by a definite recludescence ending about the middle of October but without acute symptoms.

A small swelling containing a little fluid appeared on the surface of the tibia during this recrudescence It was quiescent and was left Then succeeded two and a half months of megular fever without definite symptoms duing which he put on flesh and was merely an interesting invalid Late in December an acute relapse commenced with a typical ladder rise, spots and severe hæmorrhages followed but fortunately, this time, no meteorism temperature came down to normal at the end of January but before it had been down for fourteen days again commenced to rise in the evening; there then appeared edema of both legs confined to the tibial area and as this subsided definite areas of periostitis were recognised These were incised under chlorofoim but no pus was obtained-subsequently, however, pus appeared in other places on the tibiæ from time to time and continued to do so until early in March when the patient sailed for England Widal's reaction early in the first attack was positive 1160 to B. Typhosus, negative to Paratyphoids and again in the last attack in January was positive 1 40 partial I 80 to B Typhosus and negative to the Paratyphoids A slide of the pus from a periosteal abscess in January shewed no cocci or bacilli and later, pus plated, grew none The original periosteal abscess which appeared in September was explored without success with a large needle on December 23rd The temperature fell at once, but on the sixth day afterwards the last attack commenced On the eight day on opening the abscess about 20 minims of pus escaped cannot help thinking that the original periosteal abscess contained typhoid bacilli which had increased in virulence and that by pricking this abscess with the needle point I allowed them to escape into the circulation and so started a fresh No other explanation seems to explain its origin satisfactorily Another complication was the presence of a tapeworm, an old friend of nine years standing which even in health had resisted all efforts at displacing him No segments were seen till November, from then till the middle of the last attack segments were passed · a large mass followed by a large hæmorrhage appeared on January 8th, the segments in this were very short and must have been very near the head, yet by February 17th mature segments were again being passed

Altogether it was a strange case and presented many difficulties. The fact that we were 120 miles from a railway, and that there was no chain of bungalows on the road negatived any idea of moving for change of climate. My attempts at prognosis invariably met with repulses and after a time I gave up trying. For the last fortnight's history. I am indebted to Captain Chopping, RAMC, to whose care the patient had been transferred.

### A CASE OF HATPIN IN THE DUODENUM

BY K L BATAVYAL, LMS.

House Surgeon, Medical College, Calcutta

On the 22nd of November, the patient, a Hindu boy, aged five years, swallowed a hat-pin about 31" long with a poicelain head, while playing with three other boys, of whom he was the youngest. The boys held a meeting and proposed to do something by which they could get iid of then stern parents The strange idea of committing suicide struck them, and they thought of putting an end to then lives each in his own way. One thought of drowning himself, another of taking opium, the third of strangulating himself, while our hero who had the pin in his hand thought of swallowing it, and putting an end to his life which was a builden to him so far as to put the pin into his mouth, and tried to swallow it The pin stuck at the back of his throat when suddenly finding life had become too dear the boy ran to his sister, a girl of eight, to assist him in removing the pin from his Then effort to withdraw the pin caused it to slip further down the throat instead parents of the child did not believe the story and taking the matter lightly paid no heed to it The boy was then quite well for 5 or 6 days, after which he complained of pain in his epigastrium, which gradually became worse and caused the child to take to bed He would not allow the part to be touched nor the dhotr to be tied round his waist On the 8th of December (after 16 days) the patient was brought to the Medical College Hospital and admitted under the care of Major C Stevens, IMS An 'X' 1ay examination showed the pin lying obliquely in the right hypochondriac, epigastric, and umbilical regions with the head down-

On the 10th of December, Major Stevens operat-The abdomen was ed on him under chloroform opened by an incision about 3½" long, 2½" being above the umbilious and the rest below it was found that the pin had made its way downwards by the blunt end through the esophagus, stomach and pylorus and was caught at the bend of the duodenum As the 'X' lay examination showed the head was lying downwards, a small linear opening was made into the duodenum anteriorly and the pin was extracted head first The opening in the duodenum was stitched by silk sutures and the abdominal pariet es closed as usual The child was allowed no food for the first 24 hours next 24 hours rectal alimentation was given For the subsequent five days the child was on liquid diet only, after which he was given his The parietal stitches were reusual meals moved on the 12th day after the operation, and the child was finally discharged on the 4th January 1912, perfectly cured

### A ROUGH AND READY FIELD STERILIZER

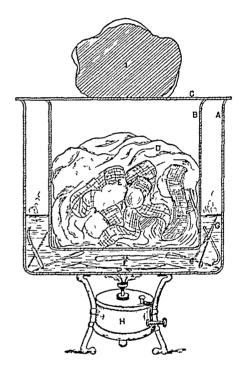
BY R. S KENNEDY.

CAPT, IMS,

Senior Medl Officer, Debong Survey Party, Abor

I HAVE recently used the impromptu field sterilizer described below, with excellent results

One places the instruments required in the bottom of the largest of a set of ordinary aluminium cooking degchis, and covers them with water containing a little soda The sponges and dressings, loosely enclosed in a piece of plain lint or bandage cloth, to prevent any active chemical antiseptics they may contain, eg., biniodide of meicury, from attacking the aluminium, are pushed into the smallest deachi



A=the big outer "degchi"

B=the smaller inner "degchi"

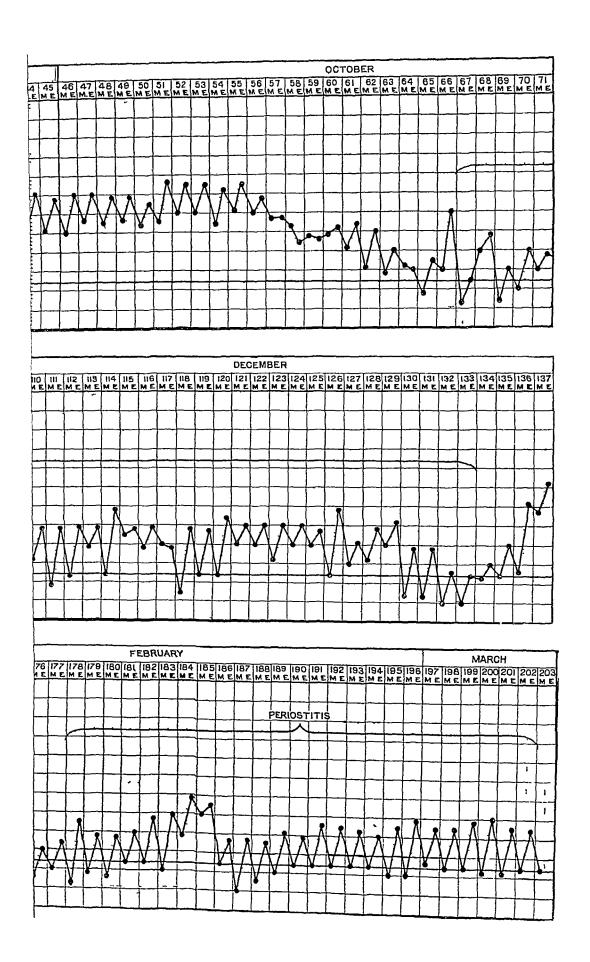
C=the "degchi" cover

D=plain lint or bandage cloth

I=the stone on the "degchi" lid to raise pressure of steam.

of the same set, which is then floated on the water Next one in the bottom of the large degchi closes the large degchi with its own lid, and on top of the lid one places a large stone to raise the pressure and temperature of the steam in the The large degchi when the water boils degchi is now heated over a stove, lamp or fire, and, when the water has been boiling for a quarter of an hour or twenty minutes, the instruments and dressings are ready for use, and the dressings are dry or very nearly so

I append a diagram to illustrate the apparatus, which, at any rate, has the merits of simplicity and ready availability.



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# Indian Medical Gazette. APRIL

### THE LEAVE DIFFICULTY

"THE last sentence of paragraph 6 of the regulations regarding the grant of study leave to officers of the Indian Medical Service as published in Army Department Notification No 867, dated September 6th, 1912, is reconstructed as follows

The total period of absence from duty in India in the case of officers under the leave rules of 1886 for the Indian Army will be strictly limited to two years, and in the first instance the total period of leave granted (study leave combined with any other sort of leave) will not exceed one year."

The importance of this alteration lies in the words we have italicised above (see I M G, November 1912, p 457, for the whole rules for There can be no doubt that this study leave) will have an important effect on the leave griev-As we have more than once pointed out, leave is becoming more and more difficult to get, it is useless for Government to improve the leave rules and amend the Civil Service Regulations as is now being done, if the leave cannot be granted The leave rules in theory are liberal, even generous, but the heart buinings and disappointments which annually recur as every hot weather approaches, show that though with one hand leave is offered yet with the other hand it must be re-We are strongly of opinion that the 20 per cent reserve is not sufficient to allow men in turn to take the leave which is certainly needed for the benefit of health, and this difficulty of getting the leave "earned" and to which men are "entitled" has been in recent years accentuated by the fact when men do get their chance they very frequently take very long leave and in consequence the turn for leave does not come round as quickly as is desnable, and so men in every way deserving on even needing leave are met with a non-possumus, because the 20 per cent reserve is exceeded.

We take up at random one of the quarterly civil lists for January 1913, and we find the following leaves of I M. S. officers noted; we give the total periods only; 18 months, 2 years, 15

months, 2 years,  $13\frac{1}{2}$  months, 19 months, 2 years and 9 months, 1 year and 7 months, 2 years, 2 years, 18 months, and 3 months (privilege) It is obvious that if men take such long period of leave and if the 20 per cent is insisted on, other men must needs wait for a vacancy on The above rule limiting the the leave roster grant of first study (combined) leave to one year is we think good, and will help to remedy the The medical officer can take above gnevance a year (or even less leave), he can put in 3 or 6 months study, and the rest should be a real holiday, for after all leave was instituted not for study, but for recreation, and for the recovery of health, and this aspect of furlough should never be lost sight of

# Current Topics.

### LADY GROVER'S HOSPITAL FUND.

This Fund was instituted in 1911 under the pationage of H E the Viceroy and is intended to assist officers by securing for their wives, unmarried daughters, and if dependent on them for their mothers and unmarried sisters, the benefit of accommodation in a good nursing home in London at low rates

Patients are charged £2-10-0 weekly, this does not include doctor's fees

A subscriber desirous of securing the benefits of the fund should address the Honorary Secretary of the London Committee, Mrs R J Strachey, 21, Neville Street, Onslow Gardens, London, S W

The annual subscription is Rs 10 or 13s 4d, which should be paid to the Alliance Bank of Simla, or to Messis Grindlay & Co, 54, Parliament Street, London

Those eligible to join as subscribers are —

- (a) Officers of the British Service serving in India
- (b) Officers on the active list of the Indian Aimy

(c) Officers of the Indian Medical Service.

(d) Officers of the Indian Army Departments Copies of the prospectus, bankers' forms, and further information can be obtained from the Honorary Secretary, Lieutenaut-Colonel Bruce Seton, vhs, ims, Milsington, Simla.

### THE ETIOLOGY OF ENDEMIC GOITRE \*

For the second time within the past few years an I M S. officer has been chosen to deliver

<sup>\*</sup>The Milroy Lectures delivered at the Royal College of Physicians, January 1913, by Major R McCarrison, MD, MR.CP, IM.S John Bale & Sons and Danielsson

the Milioy Lectures before the Royal College of Physicians, London Lieut-Colonel Leonard Rogers, in his Milroy lecture, dealt with Kalazar and its problems, and now Major McCarrison lectures on endemic goite, a subject of vast interest in India, as well as in Europe, and other parts of the world

When we remember that most of his work on gotte was done by Major McCarrison when stationed at the remote frontier station of Gilgit, far removed from the laboratories and clinical facilities of our presidency towns, our admiration for the work must be increased, and here again we find an I-M S officer nobly carrying on the traditions of a service which has always been distinguished for its politically useful and able work among the frontier tribes of India

While at home on leave Major McCarrison worked with Professor Kocher and Kolle, the well known Swiss scientists, and with Dr Berry and other British workers on this ever-interesting subject

We have on former occasions referred to the work of Major McCarrison as read before the Royal Society and published in the Annals of Tropical Medicine, as these lectures have been published in the Lancet and other medical journals, it is hardly necessary to recapitulate the results arrived at

McCarrison, as is well known, seeks to prove that gottre is due to a contagium vivum which enters the human intestine with the food, and this contagium then invades the thyroid gland and exerts its haimful influence on the gland itself, or it may remain in the intestine and there produce poisonous substances which on absorption initiate the thyroid changes. So far, however, the work of Grasset in 1898 has not been confirmed and no bæmatozoon such as he described has been found

Many reasons led him to suspect the intestinal tract as the harbour of the virus, and since 1905 he has used with good effect intestinal antiseptics in the treatment of goitie. Of 100 cases the results were followed up in 82, and of these 62 were "cured or markedly benefited"

The toxic agent leaches this situation by water of by food, we refer the reader to Lecture IV for an account of this work

We commend these lectures to our readers. The publishers have produced a handsome volume, clearly printed and well illustrated, a valuable bibliography is also appended.

### MOSQUITOES IN DACCA

ONE of the most interesting papers in the supplement to the sanitary report on the late province of Eastern Bengal is that by Captain T C McCombie Young IMS, on some larvicidal experiments in Bengal's second capital Dacca.

The report is interesting and instructive and shows how little value can be attached to isolated and partial attempts at malaria reduction

The following paragraphs in a humorous way show the great need of the anti-mosquito work —

"Mosquito infestation—The number of mosquitoes, which during the cold weather makes life a burden to Dacca residents and cause the place to be throughout the province a cursing and a bye-word among those who are sensitive to their attacks, is a matter for surprise to those who are accustomed elsewhere to a period of respite from this plague during the cold weather

Local and climatic conditions in Dacca, however, produce an unusual prevalence during the cold weather months

The old native city of Dacca, with a surface drainage system constitucted entirely at haphazard, with here a length of pucca drain and there a kutcha drain, some times winding in a tortuous course through culverts and marshes, past back premises, of houses and in accessible and uncleansable privies, being fed by abundant spillings from a pipe water supply, provides an extensive area of breeding grounds filled with the pabulum in which mosquitoes of the Culex Fatigans species in the dry cool weather of the winter months grow and multiply if undisturbed by any flushing agencies

In February 1911, the conditions I have described were well established in my own house (No 30) in Ramna. I had at that time no precise means of testing the degree of the pest, but it may give some indication of it to note that on several occasions on sitting down to write letters after sundown during February I found it necessary to start a Jost fan to blow away the crowds of mosquitoes who would otherwise have obscured my field of vision, so numerous were the buzzing hordes. At dinner parties the arms and shoulders of ladies in evening dress would by the end of an evening show distressing and abundant evidence of the numbers of biting mosquitoes who had visited them, and the common foot wear for ladies in the bosom of their families would be their own riding boots, or "Welling tons" borrowed from their male relatives"

The estimate of the cost was as follows —

THE CRIMINGS OF THE CORE WITH ITS TOTIONS	
	Rs
Six coolies at Rs 10 per month for six months	360
One et sepoy or non commissioned officer at Rs 20	
per month for six months	120
Railway fare of above at about	20
Appliances and kerosene oil	150
Railway fares from Lahore to Dacca of six sweepers	120
Construction of barracks for the sweeper staff	162
Rent of land and house for havildar and staff for six	
months	48
monons	
Total	980

"Once a week every collection of water in which mosquito larvæ had at any time been found was sprayed with a larvicide preparation similar to that recommended by Colonel W G Gorgus, the Panama Canal operations The original formula of this is, as supplied to me by Dr Bentley, was—

Crude carbolic acid
Raisin
Sol caustic soda
... 100 gallons
... 60 ,,
20lbs of solid insat sol

This had to be modified to meet the dilution of the solution of ciude carbolic acid obtainable, and the proportions of the larvicide we used were as follows—

Acid carbolic	21 pint
Raisin	1 ounces emulsion.
Caustic soda	1 ounce )
Crude kerosene oil	. 2 gallons

This was applied once a week to all breeding grounds with a success knapsack spray, as used by Dr Bentley

in the Bombay operations

This concoction formed an efficient larvicide, no larvæ being discovered in any collection of water within one week of treatment with the exception of scanty im mature larvæ of C Concolor which appear to be 1ather resistant to the action of the larvicide Egg boats, however, were commonly visible, showing that eggs were being deposited although not maturing

"The sequence of events and conclusions which one may fauly draw from these conclusions appear to be-

(1) That the culex infestation of the city was main-

tained at about the same level throughout

(11) That in the month of December, the houses at the greatest distance from the city in the area under treatment were nearly immune from the pest, while those on the outskirts of the city were fairly well stocked

(111) That when the pest began to be felt within the treated area the houses nearer the city began to feel it hist, while those most distant, i.e., about 11 miles from the city, felt it ten days to a fortnight later showing the influence of infiltration

(1v) A southerly wind would be followed by an increase in numbers caught in the traps, and in the amount of inconvenience caused, showing the influence

of direct flight

It would thus appear (a) the mosquitoes reached the Ramna both by infiltration and direct flight, and (b) that the extensive breeding grounds of Dacca city were eventually able to stock with mosquitoes houses 11 miles distant"

"So far from it being possible therefore to carry out effective mosquito reduction in the Ramna within an area of about 2 square miles, by an expenditure of Rs 980 as I had been sanguine enough to hope, it appears that it would be necessary to carry out larvicidal measures in Dacca city as well, and to do this effectively, it would, in the first instance, be necessary to provide an efficient surface drainage system including canalisation of the thats at an approximate cost of some 50 lakhs of rupees, the sum which, as I am informed by the Sanitary Engineer, would be required to complete this work

I put forward these records of an interesting failure, and these somewhat dilettanti observations, carried out in the intervals of the touring season, as they show the distance at which a prolific breeding ground can make itself felt within a sterile area, and the fruitlessness of

larvicidal measures upon a small scale "

### DIPLOMA IN PSYCHOLOGICAL MEDICINE.

THE Regulations for this newly instituted Diploma have recently been issued by the University of Cambridge The examination for the Diploma is to be divided into two parts first part of the examination will consist of (1) a paper, and (2) a practical and oral examination in the Anatomy and Physiology of the Neivous System, (3) a paper, and (4) a practical and oral examination in Psychology The second part of the examination will consist of (1) a paper, and (2) a clinical and oral examination in Neurology, (3) a paper in Psychiatry, Lunacy Law and Asylum Administration, (4) a paper containing a choice of subjects for an Essay in Psychiatry, (5) a clinical and oral examination in Psychiatry Any person whose name is on the Medical Register is admissible to Part I Candidates for Part II must, at the time of entering for the Examination, be Registered Medical Practitioners of not less than two years' standing, and must

produce evidence of having had twelve months' The Examination for special clinical experience the Diploma will be held once in each year. In 1913 there will be an Examination for Part I, beginning on Tuesday, June 31d, and for Part II, beginning on Tuesday, July 1st, will be held in London during March of April. In 1914 and in subsequent years the Examination for Part I, will be held at Cambridge during May or June Every candidate will be required to pay a fee of six guineas before admission of re-admission to either Part of the Examination A candidate who has passed both Parts of the Examination to the satisfaction of the Examiners will receive a Diploma testifying to his competent knowledge of Psychological Medicine All applications for information respecting this Examination should be addressed to Dr. C.S. Myers, the Psychological Laboratory, Cambridge

### TROPICAL AUSTRALIA

THE question of reserving the northern portions of Australia for whitemen is well known to be one of considerable importance in Australia, and we have before us two preliminary reports\* of an expedition to the Northern Territory in 1911 under the authority of the Minister for External The member of the expedition were Prof B Spencer, Prof Gilroth, Dr Woolnough and Dr A Breinl (the latter being the Director of the Australian Institute of Tropical Medicine) We quote the following extract -

"(a) Settlements (Darwin and Pine Creek) —Bearing in mind that the country was visited at the time of year when the climate was most suitable for Europeans the general health was remarkably good. The families of the second generation examined showed no signs of physical deterioration, but we were informed by certain persons that it is regarded as advantageous to send children away on leaching the age of ten or twelve, but from cases that have come under our own observation, we are unable to state positively that this is absolutely necessary so far as health conditions are concerned, factors such as that of education entering into the question

There are none of the tropical diseases such as malaria and dysentery endemic in the settlements, and as long as the necessary hygienic precautions are observed, there

is no reason to anticipate their appearance"
"As regards the intelligence of the school children, the evidence available points to the fact that there is no deterioration observable, the standard being the equivalent of that of more southern settlements

"There are at present men who have spent from three to four decades in the Territory, and every one of them compares favourably, both as regards physique and energy, with men of similar ages elsewhere"
"The healthiest and strongest are those, both men and

women, who take regular open air exercise both in the relatively cool and in the hot season"

Breinl's report on the medical aspects of the country is a valuable one The so-called "Northern territory" comprises no less than onefifth of the Australian Continent and had in 1911 a very scanty population, 3,005 in all, consisting of 1,173 Europeans, male and female, including

<sup>\*</sup>iMcCarron, Bud & Co, Publishers, Melbourne

children, 1,340 Chinese, 89 Japanese and the rest Philippinos, Malays and other races The out-ofdoor-dwellers in the bush were on the whole healthren than the townspeople and men healthren than the women

The following tropical diseases were slightly prevalent · ulcerative granuloma, a very few cases of beir-beir, iaiely filainasis, trachoma a few cases, but malaria was fairly common Mosquitoes were "Nyssorhynchus annupiles" is in all prevalent probability the agent which distributes malaria (as this insect has been proved to do in Formosa) On the whole, malaria is widespread throughout the parts visited, and epidemics are not unknown It is probable that the malignant tertian variety was introduced from New Guinea and the benign tertian from Western Australia and Queensland Apparently the "wild 'blacks did not suffer from malana, but it was "common among the blacks who have come in contact with and have been employed by the whites"

Yaws is very common, not a single case of leprosy was found among aboriginals, but venereal disease is common among all the inhabitants. Small-pox is common and greatly dreaded by the natives

These reports are only preliminary and no certain conclusions can be drawn. The conditions of life as described in the reports and as seen in the numerous photographic illustrations show that the life is a tropical one, and conditions are not very different from the more northerly parts of Northern India, though the hot weathers are not so severe or trying.

No doubt parasitic disease is the main enemy, and here we have a splendid opportunity for demonstrating on a large scale, if the white man can live, work and bring up healthy and vigorous descendants in a tropical climate, but this can only be possible, we believe, if the most ligorous precautions are taken to keep down and keep out the parasitic affections of the tropics Many of them are there, but the population is small, and if an attempt was made on lines as thorough as that of the Panama Canal, we think it might well be successful If the Asiatic inces are to be kept out of Northern territory, it can only be done by populating it with white races, and to do so enormous efforts are containly needed and bid fan to succeed \*

A COMMITTEE of representatives of Medical Freemasons' Lodges in London will be held in London on 11th August 1913, in the Grand Temple at Freemasons' Hall, Great Queen Street, W.C., under the presidency of the M. W. the Progrand Master Lord Ampthill, Gosi, Goie, in connection with the International Medical Congress All brethren who wish to be present should notify the fact to the Grand Secretary at the above address

## Reviews

Clinical Methods for Indian Students— By Major G. T. Birdwood, i.m.s., Civil Surgeon, Lucknow Calcutta Thacker, Spink & Co., 1913 Price, Rs. 2.8

This is an extremely useful little book written as a guide to students and general practitioners in India in diagnostic and therapeutic measures Lt-Col Roberts, CIE, IMS, contributes a foreword

We are strongly of opinion that the little book is a useful one and contains a vast amount of information in clinical methods in a clear and handy form. The pages are interleaved so that the owner can add notes of other methods.

The best way to indicate the contents of the little volume is to give a selection of the headings of the 68 sections into which it is divided—we can only quote a few—eq,

- 1 How to examine blood for malaria
- 2 How to make a lencocyte count
- 3 How to estimate hæmoglobin
- 4 How to examine for Leishman-Donovan bodies
- 5 How to stain sputum for tubercle bacilli
- 6 How to examine a throat swab
- 7 How to fill a blood capsule for Widal's test
- 8 How to examine for plague bacteriologically
- 9 How to prepare a vaccine.
- 10. How to inoculate antitoxic serums
- 11 How to treat a case of snake-bite
- 12 How to examine for spirochæta pallida
- 13 How to use Salvarsan
- 14 How to identify mosquitoes
- 15 How to test for albumen in urine.
- 16 How to test for blood in urine
- 17 How to examine fraces for amoreba
- 18 How to inject quinine for liver abscess.
- 19 How to cut sections of fresh tumours
- 20 Note on common stains and materials

It will be seen from this selection what a practical and useful little book this is. We can heartily recommend it and no hospital in the mofusual should be without a copy

The Soldier's Foot and the Military Shoe.--By Major Edward L Munson, Medical Corps, U S Aimy

Major Munson's work on military hygiene and field service work of a medical corps are well known to most of our readers. The present eminently practical book is on the soldier's foot and his boots

Napoleon, Wellington, Ney, and many other great generals have left sayings on record which show how much importance they attached to the proper fitting of boots for soldiers, and if a length of the time and trouble were taken to fit

<sup>\*</sup>See Admiral Mahan's recent book Arbitration and Armament for his view on the necessity of peopling both sides of the Pacific with Anglo Saxon races, as arising from the opening of the Panama Canal

the infantity soldier with good shoes as is taken over "stables" in a cavility corps, we would not read of 10 per cent "being the average loss which must be expected" from sore feet among unseasoned troops on taking the field German Army 7 per cent of conscripts are rejected yearly on account of foot defects due to bad shoeing. At the commencement of the Fi inco-Prussian war no less than 30,000 soldiers were unfit for service from this cause alone.

The Army authorities of the United States have taken up this in a thorough manner, and Major Munson's book is the result of his work as President of the Army Shoe Board and is intended as a handbook for officers and N-C O's of

Major Munson shows that "a very large proportion of the foot injuries common to marching troops are unnecessary" and are preventable

The great need is that much more fromble should be taken to fit the individual soldier, and the Quartermister's Department must keep a very large stock of boots of all sizes and widths, and the soldier must not be illowed to take away a pan of boots till he had had them carefully fitted on and till his choice has been passed by an officer, for it is recognised that the private in most cases is unable or too thoughtless to take the trouble to fit himself comfortibly, and everyone who his bought a readymade pair of boots will quite under-trind this Major Mun-on shows by and of X-Ray photos the deformities produced by the fishion ible boots of the city man The whole chapter on the points of the military boot is extremely good and is also interesting Socks are an important factor and a useful chapter is given to them Coins and bunions are discussed fully

We most strongly recommend this boot to om milituy readers

It should be on the table of every mess in It costs 1 dollar 35 cents, and is obtimable from the U S Civalry Association, Fort Leavenworth, Kansas, U S A

A Text-book of Obstetrics -By BARTON COOKE Hirst, u. D. Professor of Obstetrics in the Unit versity of Pennsylvania etc Pages 1013, W B Saunders & Co Price, Cloth 5/- net

THE fact that this text-book has passed through 7 editions since it was first issued in 1898 proves that it has met with a well merited success

This list edition has been thoroughly revised, ind brought up to date and the more important of the recent advances in the field of Obstetrics or Gymecology have been incorporated in it

The nticle on diseases of the breasts has been considerably extended, the author holding that the head of an Obstetile Department has opportunities of acquiring experience in diagnosis and skill in the treatment of these diseases that no general surgeon can rival

This book being now so well known as one of the best works on the subject emanating from the American School, it is unnecessary to give a detailed review of it Suffice it to say that this latest edition more than justifies the already widespread popularity that this book enjoys

The printing illustrations (of which many new ones have been added to this edition) and the general "get up" of the book are in keeping with the usual high standard of excellence that we have been led to expect from the firm publishing it

Lectures Clinical on Psychiatry -By KRAEPLIN (Johnstone) Baillière, Tindall & Cox London Demy 8vo Piice, 10s 6d

THE third edition of this work fully maintains the high standard of excellence of the previous editions

The descriptions of the various types of mental disease are excellent word pictures, the salient features of each type are described in a forcible way so as to impress them on the reader addition of the after-instory of each case as far as it can possibly be ascertained as a foot-note is an excellent idea, verifying the prognosis given in

A note on seco-diagnosis in relation to mental disease is added to this edition, a useful arrengement, whilst the addition of appendices on dements precox and mancic depressive insanity bring our knowledge in these subjects up to

This book can be confidently recommended to every princtitioner as an excellent clinical treatise on the important subject of mental diseases

Serum Diagnosis of Syphilis and Luctin Reaction together with the Butyric acid test for Syphilis - By Hidero Nogueni, no, M sc. J B Inprincett Co. Calcutta Butter worth & Co (India), Ltd 12s 6d -Rs 96

In this work Noguchi gives a fair résumé of all the tests for syphilis that have found any Most of the letter-press is, of course, taken up with descriptions of his own tests, and we are glad to note that now he appens to favour the use of fresh complement, whereas when he first give his human-hæmolytic system as a modification of the Wassermann tests to the world he strongly recommended it as feasible at the bedside, so to speak, by reason of dired complement on blotting paper being used, the amboceptor being supplied in similar condition.

Those who know naught of serology will find much information, couched in clear language in this work, and ifter its perusal will know that there is no royal road to success in serology The Wassermann reaction is not one that can be critical out by anyone who is able to detect albumin in a specimen of urine, or even the B tuberculosis in a specimen of sputum

Wherefore we recommend the work to our

readers

Practical Anatomy —By J C Heisler, Philadelphia J B Lippinott Co, Sole agents in India, Messrs Butterworth & Co, Calcutta Price 21s net

This seems to us to be a very useful and practical volume on anatomy from the point of view of the student and his dissecting. The details of each region are presented in the order of dissection and the illustrations are well adapted to accompany the descriptions given. Very wisely we believe biref references are made to the relation of structure which have an importance in practical medicine and surgery.

As regards terminology Dr. Heisler believes that the new terminology is a matter of growth and evolution, consequently he has not adopted in its entirety the new or Basle nomenclature, but B N A terms are either used directly or are added in parentheses

The book can be relied upon as a sound book for the student in the dissecting room. It is freely and admirably illustrated, and the publishers have put forth the book in a guise worthy of their high reputation.

Ætiology of Beri-beri —By M. L. Kamnath, M D (Madras)

This little pamphlet written by Dr Kamnath, MD, Instructor, Medical School, Vizagapatam, was prepared as a thesis for the MD degree of Madras in 1911. It is as interesting as MD theses usually are. It contains a full statement of the ætiology and clinical aspect of berras far as known in 1911. Recent research has put some of it out of date.

The Principles and Practice of Medicine.—
By Sir William Osler (Bait), MD, FRS
Eighth Edition Largely Rewritten and Revised
Calcutta Butterworth & Co (India), Ltd, 1912
Pp 1147 Price Rs 15 12

IT would be superfluous on our part to attempt to criticise a work, such as the one under review, which is acknowledged to be the text-book "par excellence" on the Principles and Practice of Medicine

The fact, that it still retains its popularity, speaks for itself

Judging from the book before us we can most certainly say that, with Professor Osler, the success of the past has been truly the earnest of the future. This, the 8th edition, should still further enhance the reputation that the preceding editions have brought to its author.

The great specialisation that exists at the present time in all departments of medicine and its ancillary sciences, leads to the result that the achievements of one branch may remain almost unknown to those working in some other branch, though they may be of equal importance to medical knowledge

Professor Osler has succeeded in correlating these achievements. And to deal with the

extraordinary growth of knowledge much new matter has of necessity been incorporated in every section and many chapters have had to be entirely recast. Leishmaniasis, The Sporotischoses, the Colon infections, Poliomyelitis Pellagia, Disorders of Metabolism, Carsson disease, Ochronosis, Hæmochromatosis, etc, have all needed new sections

It is naturally impossible to insert everything that is written about a disease within the covers of any volume, and Professor Osler has the wonderful tact of knowing what best should be put in and what left out, this edition being only about 40 pages longer than the preceding edition

With regard to Leishmaniasis Patton has proved that Kala-azar is not transmitted by the Conorhinus

The mosquito, now, is being incliminated as the callier of that disease by Italian workers, notably Franchim, in our opinion on somewhat slender grounds

In the 7th edition it is remarked that the parasite is not found in the circulating blood No mention is made in this edition that it is so found

Colon infections receive for the first time a separate section. This is all the more acceptable as the practitioner has not yet realised the frequency with which post partium temperatures are due to coli infections such as pyelitis,

Acute Poliomyelitis, we note, occupies in accordance with its latest pathology its proper place amongst the specific infectious diseases, and not among diseases of the nervous system Flexuer's latest work on monkeys as of youe is quoted. It is true that the infecting agent still belongs to the "arcana" of pathology, but the strides made by Flexner in the elucidation of the pathology of acute anterior poliomyelitis We find its latest treatment are tremendous by Hexamethylenamine mentioned This lests on the hypothesis that unotropine administered by the mouth leads to the appearance of formaldehyde in the cerebro-spinal fluid

Diseases of the ductless gland have in this edition been assigned a separate section being no longer considered along with diseases of the blood

The article on the pituitary gland is excellent, its bievity being made good at the end of the chapter by referring the reader to works by Hastings Gilford, Swale Vincent and Cushing

The examinee is catered for when we read, as it were in a nutshell, "Hyperprintarism may lead to gigantism, when the process antidates ossification of the epiphysis, to acromegaly when it is of later date, "Hypoprinarism to adiposity with skeletal and sexual infantilism when the process originates in childhood, to adiposity and sexual infantilism of the reversive type when originating in the adult"

The volume is thoroughly practical and can be recommended as a guide in diagnosis, symptomatology and treatment to all practitioners in whose library the book should most certainly find a place

### SPECIAL ARTICLES

I

### THE MEDICAL SERVICES IN 1912

The past year has been one of peace, the only exception being the end of the Abor expedition

The administrative changes in Bengal, announced at the Imperial Durbar in the closing days of 1911, necessitated corresponding changes in medical administration Since October 1905 the two provinces of Bengal and Eastern Bengal with Assam each had, as Administrative Medical Officer, an Inspector-General of Civil Hospitals with the lank of Colonel These two provinces being rearranged in three, a third A M O became necessary Bengal has retained its I G CH, the IGCH of Eastern Bengal and Assam remains as A M O of Assam, but, that province being a small one, took over also the duties of I G of Pilsons and of Sanitary Commissionei, while the new province of Bihai and Orissa also got an I G UH, an appointment which will presumably increase by one the number of Colonels in the Bengal Service was hoped that when Bengal proper became a Governorship, and so was placed upon the same footing as the other two old Presidencies of Madras and Bombay, the I G C H of Bengal would receive the rank of Surgeon-General, like the A M O of Madras and of Bombay This change, however, has not yet been sanctioned The I G C H of the new Bihai province also has not yet been formally gazetted to the rank of Colonel

The Public Service Commission, which is at present holding meetings and taking evidence in India, will deal with the future of the I M S next cold weather

A reorganisation of the Sanitary Department has been carried out during 1912 The appointment of Sanitary Commissioner with the Government of India, vacant for a year after the death of Lieutenant-Colonel Leslie, has been That office, however, again became immediately subordinate to that of the Director-General, instead of holding a semi-independent position, as it had done for ten jears past new policy was entered upon in 1912, in the appointment of independent medical men as Deputy Sanitary Commissioners An improvement in municipal administration and in public health should result from the appointment of health officers in all large towns, and the increase in number of such posts should do something I towards opening out a career for Indian Medical men

During 1912 a formal ruling was given that officers of the Bacteriological Department are eligible for promotion to the administrative grade Such a ruling may be reassuring to the officers of that department, but was hardly necessary The selection of the present Surgeon-General of Madias, over the heads of several seniors, for promotion to that rank, in 1911, showed clearly that such officers were eligible for promotion He had served in the Bacteriological Department for the last ten years and more

The foundation of a Tropical Medical School in Calcutta has been sanctioned during the year Such a school should have a future. There is no city in the world which affords greater scope for the study of tropical diseases than Calcutta

Promotion has run its course during 1912 In the R A M C there were three steps to Surgeon-General, and ten to Colonel One of the newly promoted Colonels retired two days after his promotion Bengal, Madias, and Bombay, each got one step to Colonel The Madras promotion was antedated to November 1911

The following table shows the comparative run of promotion in the Medical Services, giving the length of service as promotion of the junior officer in each grade at the end of 1912. The R A M C, after having experienced more rapid promotion for many years than the I M S, or at least than the Bengal and Madras Services, has now fallen somewhat behind them

	Colonel	Selected list
R A M C	29½ years	263 years
Bengal	26 ,,	254 ,,
Madias	28½ ,,	204 ,,
Bombay	25½ ,,	244 ,,

During 1912 an officer of the I M S General List got Brevet promotion to Major, a very rare distinction in the history of the I M S

The number of honours bestowed during the year was not large, naturally so, after the distribution at the Imperial Darbar. The most noteworty is the G.C. V.O. conferred upon Sir Richard Havelock Charles. Only once before has the Grand Cross of any order fallen to the lot of an officer of the I.M.S., the civil G.C.B. given to Sir John McNeill, of the Bombay Service, in 1839, more than seventy years ago. Both, however, had retired some years earlier.

The number of deaths among men on the active list has been small, six in the R A M C and two in the I M S out of a strength of 778 at the beginning of the year, a very small number, which speaks well for the general physique of the service Among the former were Surgeon-General Kerin, and Colonel Lambkin, the well-known authority on syphilology The Bengal Service lost one man, Lieut-Colonel B C Oldham, in January, in the General List of the I M S one death took place, Captain H A Dargan No death occurred

among the Madias and Bombay men, now only a small number

Among officers on the retired list, of course, there were many deaths, including those of several Chimean and Mutiny veterans, now a rapidly dwindling band. The most noteworthy names are, in the R. A. M. C., Surgeon-Generals Sn. John Woolfryes, S. B. Roe and D. A. C. Fraser, in Bengal, H. M. Greenhow, the last survivor among the medical officers who took part in the defence of Lucknow, E. A. Brich, formerly Superintendent of the Presidency General Hostal in Calcutta, and Andrew Duncan, in Madras, H. E. Busteed, the author of Echoes of Old Calcutta.

Although they were not members of the services, the deaths should also be noted of Dr T L Pennell, the famous medical missionary of Bannu, and of Dr Coulter, formerly a well-known physician in Calcutta

Surgeon-Major H B Hinton still remains the senior officer on the retired list. He was certainly still living in December. He was born in March 1813 two years before the battle of Waterloo, so before these notes are published will, it is to be hoped, have completed his century

The strength of the I M S, as shewr in the Indian Army List of January 1913, omitting one officer who retired a few days before the end of 1912, was 770, or eight less than on 1st January 1912 They were distributed as follows—

It is sometimes said that it is necessary to reduce the constantly increasing numbers of the I M S. The Army List of July 1861, more than half a century ago, gives the then strength of the I M S as 819, nearly fifty more than at the present day, though the annexation of Upper Burma, six and twenty years ago, might have justified some increase, and has certainly found occupation for a good many members of the service

Military Letter No 340 of 7th November 1864, from the Secretary of State, published in India as GGO No 1060 of 231d December 1864, in paras 17 and 18 fixed the strength of the IMS as 861 This number, however, was never actually reached

THE MEDICAL SERVICES IN 1912

I -R A M C
A -Deaths

No	Rank	Name	Date	Revarks
1 2 3 4 5	S G Colonel Lt Col Do Major Captain	M W Kertn F J Lambkin H B Mathias R G Hanley L E L Parker F H Soiners Gardner	3rd May 8th Mar 28th June 30th June 25th Ma	Dover Blo-mfontein Khutoum Rluemfontein Punt, Bight's disease Southsea

*****	B —Retn ements							
No	Rank	Name	Date	Remarks				
1	S G	Sir F W Trevor,	1st Jan					
1	Do	J C Dorman	27th Mar					
2	Do	G D Bourke	15th Oct					
2 4 5 6 7 8	Colonel Do	S ( B Robinsen H G Hathaway	21st May	0 ** **				
6	Do	H G Huthaway J R Dodd	8th June					
7	Do	C R Tyrrell	12th Oct 11th Sept	H P 9th Sept				
8	Do	W G A Bedford.	19th Sept	On H P				
		смв	zoon copt	01111				
9	Do	R I D Hackett	13th Nov					
10	Do	R Jennings	30th Dec	On H P Retired 2nd Jan 1913				
11	Lt Col	F S Heuston	22nd Jan					
12	Do	E P Nicholls W A Morris	9th beb					
13 14	Do Do		lst Vai	0-7117 0-7				
			10th Mar	On T H P (F P 10th Sept)				
15 16	Do Do	G F Gubbin R R H Mote	19th Feb 8th May					
17	Do Do	J N Salvage	15th May					
18	Do	W L Reade	14th Aug					
19	Do	A Dodd	18th rept	,				
20	Do	(' W Johnson	11th Out					
21	Do	G E Hale DSO	23rd Nov					
22	Mujor	A E Thorp	20th Jan					
43	Do	E ( Anderson	30th Inn					
24	Do	C W Really	27th July					
25	Do	R F E Austin	27th July					
6   27	Do	N Marder F & Faichnie	27th July					
28	1)0	F & Faichnie A J Chambers	2 th July 27th July					
49	Do Do	H P Johnson	9th Nov					
3บั	Ciptain	C Kelly	5th J in	On I II P (F				
	Отрини	o dony	00	P 5th Jan 1913)				
31	Do	H E Gotelee	24th April	•				
32	Do	F J Turner	3rd July					
33	Do	R M Ranking	26th Oct					
34	Do	L Bon field	6th Nov					
35	Surgeon	G S C Hayes	19th Oct	Ist Life Guards				
36	Capt Lieut	J R Hill	ժ0th J₁n	Transferred to Reserve				
37	Do	E S Calthrop	9th Mar	1000110				
38	Do	M Drummond	5th June					
50	<i>D</i> 0	Drammona						

	C -Promotions								
οN	Old Rank	Name	New Rank	Date	REMARKS				
1 2 3 4	Do	M W Kerin in D Bruce L E Anderson H G Hathaway	S G Do Do	20th Mar 1st Apl 4th May 15th Oct	2 Dorman, R Supernumerary v Kern D From H P v Bourke, R				
5 6 7 8 9 10		C H Melville C E Nichol S Westcott B M Skinner R Kirkpatrick H Macgill	Colonel Do Do Colonel Do Do	24th Feb 9th Mar 20th Mar 4th May 21st May 8th June	Brovet v Lambkin, D v Kerin, P v Anderson, P v Robinson, R v Hathaway. H P				
11 1 13	Do Do Do	F Smith C R Tyrrell R J S Simp	Do Do Do	4th Sept 9th Sept 11th Sept	v Brevet v Dodd H P v Fyrrell, R				
14	Do	Son E H Lynden Bell	Do	19th Sept	v Bedford, H				
15 16	Colonel	R H Firth	Do Do	13th Nov 31st Dec	v Hackett, R v Jennings, H P				

	D - Honours						
No	Rank	Name	Honour	Date	Remarks		
1 2 3	Surgn Genl Do Do	A F Bradshaw A T Sloggett F M Corker	K C B K H S K H P	14th June 1st Jan 20th Mar	(Retired)  i Tievor, R v Donnan, R		

	IL, 1913	J 										
		D Hon	ours—(con	td)					B —Retir	ements—(c	contd)	
g Rn	nk I	Name	Honour	Date	REWIRKS	No	Ran	l.	Nan	10	Date	REMARKS
4 Sur Ge 5 I 6 D 7 Col	enl W B S G E M lonel W G	Gulland abtie, V C Sinclair Macpher V B Leish	G S Pen sion C B G S l'en sion K H P	16th July 14th June 16th July 13th Jan 15th Oct	(Retired)  (Retired)  v Woolfives,  D v Bourke, R	4 5 6 7 8 9	Do Do Do Do Do Do Do	ol	R Shore  E R W C F C Clark C E I G J Chavtor D R Gree H M Farl	son lhert White n	1911	Selected list
9 Ma	jor   H E		Medjidie 3id class	15th Nov					c	Promotion	រេទ	
	Ł	-Deaths	of Retwed	Officer 8		No	Old		Name	New Rank	Date	REMARKS
No	Rank	Nu	ne	Date	RFMARKS	<del>-</del>	Rank  at -Col	Р П	ehir	Colonel	25th Mai	v ffrench
$\begin{bmatrix} 2 \\ 3 \end{bmatrix}$	S G Do S M G Colonel Do	Sir J A V K C B S B Roe, D A C H J R M A L Duke	C B Fraser loberley	12th Jan 15th July 28th Aug 9th Feb 21st Apl	Wells Rally connell Cheltenham London Junbridge					-Honours		Mullen, R
6 7	Do Surg Col D S G	H J Robb W C Rob J Sparrov	าเกร วากรอท	23rd Dec 15th Apl 28th Jan	Wells Bughton Caversham Buttern, Hants		Rank 	R N	Name Campbell	Honour C B	Date 14th June	REMARKS
	Do Do Do Do Brig Surg	C B Moor B T Gira U W Lva J E Moffa G Perry	ud ins	4th July 2n (July 27th Aug 20th Sept 21st Jan	Oberland Hove Clifton Dublin (( o l d stream Guard-) Sid mouth	3 1 4 5 6	Lt Col Do Do Do Do Major	D P D P R B C II		GCVO CNG Knight NVO CIE DSO	4th Feb 1-t J ine 14th Jun 4th June 14th June 6th June	
14 15 16	Do Do Do	A Moorbe F E Maci F Pout		11th Feb 24th June 6th Nov	Ninewells, Dundee Yalding, Kent	E -Deaths of Retired Officers				1		
17 18 19	Surg - Lt Col Lt Col Do	F Gillespi G W Mc J W Jere	Nalty	7th Mar 1st Mar 9th Sep	Camberley Blackheath South Nor-	No	Rai	nk	Nat	me	Date	REMARKS
20 21 22 23 24 25 26 27 28 29 80	Surg Maj Do Do Major Surgeon Do Captain Do Do Do Do Do Do Do Do Do	F Simpso W L Rei I' Moriart J E V F I S Snilh I' A Cocl R C John W W Sc W M M E M Wr T L Rog	d by oss ingford keedge inston arlett cLiughlin ench	28th Feh 19th lune 14th Oct 2nd Jan 29th Feh 28th July 26th Jan 18th July 8th Nov 12th Mar 7th Aug	wood London	1 2 3 4 5 6 7 8 9 10	D S Do Do Do Lt C Do Do Do Do	G	A M Dal W Watso F W de T S Veal Ł A Birc K M Do I Scully R A K L ( Pince W Owen	n Fabeck e h wnne Holmes	9th Nov 16th June 5th May 1st Dec 27th Nov 17th Feb 31st Aug 28th Jan 7th Apl 13th Nov	Edinburgh Alassi, Italy (raydon London (annes Eisthourne London Utkamand Weston super, Mare
31	Do	G Sparke		22nd Nov	Eltham Mansfield, Notts	11 12 13 14 15 16	Do Do Do Do	[	A Duncan F A Rog H M Gre J C Corb F Powell B Kendal	ers enbow yn	18th Oct 2nd Nov 26th Nov 24th Oct 9th May 3rd Sept	Esher Surrey Cheltenhum Redhill Upper Nor
			$-\mathbf{Bengal}$ $A-Deaths$			wood		1 1 4 4 _				
No	Rank	Na	me	Date	REVARKS	-	1	,	III	-MADRA	ıs	<u> </u>
1	Lt Col	B C Old	ham	9th Jan	Oshorne, Isle of Wight	III — MADRAS  A — Deaths  Nil						
		В –	-Retu emen	its		-			B	Retri emen	ts	<del>,</del>
No	Rank	Ne	ıme	Date	REMARKS	No	Ro	ınk	Nai	me 	Date	Remarks
1 2	Colonel Lt Col	D ffrenc W A Sy	h Mullen kes	25th Mar 18th July	Selected list,	1 2	Color Lt C		F C Reev		21st Nov 1911 27th Apl	(Died 12st April) Solected list, extra pen
3	Do	J J Prat	tt	27th Dec	Sion Selected list, extra pen sion	3 4 5		)	H Thoms C F Fear P C Gab	nside	1st Feb 10th Sept 26th Aug	Solected list

C	-Prom	01.04.5
• •	- Prom	กแกกเร

Old Rank		Name	New Rank Date		REMARKS	
1	Lt Col	A O Evans	Colonel	21st Nov 1911	2 Reeves, R	

### D -Honours

### Nıl

### E -Deaths of Retned Officers

No	Rank	Name	Date	RFMARKS
1 2 3 4	S G Colonel Brig Surg B S Lt Col	W Van Someren F C Reeves H E Busteed P R Martin	20th May 21st April 1st Feb 24th June	Malvern London
5	Surg Lt	S L Dobie	19th July	
6 7	Col S M Do	J Fitzgerald J J Heffernan	25th July 26th Feb	I ondon

### IV -BOMBAY

A -Deaths

### Nil

### B -Retwements

No	Rank	Name	Date	Remarks
1 2	Colonel Do	W A Corkery C J Sarkies	26th Aug 6th Dec	

### C -Promotions

No	Old Ranl	Name	New Rank	Date	REMARKS
1	Lt Col	B B Grayfoot	Colonel	25th Ang	Corkery,R

### D -Honours

No	Rank	Name	Honour	Date	Remarks
1	S G	H W Steven	C & 1	14th June	

### E -Deaths of Retired Officers

No	Rank	Name	Dite	REMARKS
1 2 4 5	Colonel Lt Col Do S M Do	W E Cates A S S G Jayakar W L Bartholomeusz H O Thorold M B Braganza	29th July 14th Aug 8th Aug 29th April 20th Dec 1911	Wey bridge Hifracombe

### V—I M S

### A -Deaths

No	Rank	Name	Date	RFWARKS
1	Captain	H A Dongan	25th July	Rangoon

### B -Retuements

No	Rank	Name	Date	REMARKS
1 2 3	Major Captain Do	D N Anderson A F Hayden	1st Sept 23rd J in 28th Oct	On T H P since 23rd Jan 1910 On Perma
				nent half

### C -Promotions

No	Old Ranl	Name	New Rank Date		REWARKS
1	Captain	W T McCowen	Bt Maj	29th Aug	Kazerun

### D -Honous

### $N_{1}$

### E -Deaths of Retired Officers

No	Runk	Name	Date	REMARKS
1	Captun	D Steel	12th Dec 1911	

D G C

### II

# ON THE SUBSTANCES PROTECTING AGAINST DEFICIENCY DISEASES

As a result of my researches three years ago (1) (2) (3), I was able to place the condition known in India as Epidemic Dropsy in the group of deficiency diseases Casimir Funk (4) in his recent excellent summary of the etiology of deficiency diseases includes the following —

- 1. Beil-beil
- 2. Polyneuritis in Birds
- 3 Epidemic Diopsy.
- 4 Scurvy
- 5 Experimental Scurvy in Animals
- 6 Infantile Scurvy
- 7 Ship Beil-beil
- 8 Pellagia

He pertinently remarks (5) "There is perhaps no other subject in medicine where so many contradictory and inexact statements were made, which instead of advancing the research retaided it by leading investigators in a wrong direction"

From my own experience in India I can endoise Funk's statement. At the time I commenced my investigations many theories were prevalent as to the causation of epidemic dropsy, thus a view, which was strongly held in Calcutta by my Indian colleagues, was that the disease was induced by the adulteration of mustard oil by a mineral oil, it was considered to be insect borne, again it was held by some to be a specific infectious diseases, etc, etc

Since my investigations a number of important papers have appeared concerning the substances which are deficient in diets, which cruse these diseases, particularly by Funk(6), (7), Cooper and Funk,(8) Cooper,(9) Moore, Simpson and Adie,(10) Axel Holst and Frolich,(11) Vedder,(12) Schrumann(13)

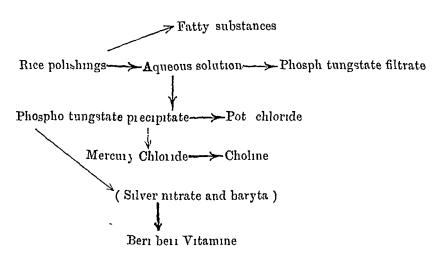
As a result of recent research our conception of this group of diseases has now definitely crystallised, and is founded on scientific experimental evidence, and, consequently, in the prevention and treatment of these diseases we are enabled to concentrate all our energy on the essential factor, instead of, as formerly, dissipating it in attempting, by the unsatisfactory method of trial and error, to find some means of combating them

It may be convenient and of practical utility, therefore, to give a short account of the present position of this important problem

# NATURE OF THE SUBSTANCES PROTECTING AGAINST DEFICIENCY DISEASES

With the possible exception of Pellagia the above diseases are produced by the absence of a

Vitamine will bring about a train of signs and symptoms, apparently different from those produced by a diet deficient in Beri-beil Vitamine This explanation probably bridges the difficulty advanced, more particularly by climicians, that a disease such as classical Beil-beil appears to be so sharply marked off by its signs from, say Scurvy or Epidemic Dropsy, as to be a different entity We have, however, to appreciate the fact that we are dealing with defects of specific substances, and these substances, although related, differ from one another in certain respects, and, therefore, their absence, as would be expected, brings about different results which are puzzling to clinical observers until the true conception of the etiology of the group of diseases is grasped Funk has shown the amount of Vitamine present in food-stuffs is extremely small, thus from 1 kilogiam of lice polishings only ½ giam of crystalline substance was obtained, and this forms the chief experimental difficulty. He gives the formula of the Berr-berr Vitamine as  $C_{17}$   $H_{20}$   $N_{2}$ His method of obtaining it by fractionation is shown in the following table -



certain essential substance from the diet has given the name of Vitamine to this substance, and he speaks of a Beil-beil Vitamine, and a Scurvy Vitamine, and these two substances are different, thus, the Scurvy Vitamine is much less stable than the Berr-berr Vitamine as the investigations of Axel Holst have shown Also different food-stuffs which are known to prevent Berr-berr, eg, yeast, oats, etc, are unable to prevent Scurry, grains containing no Scurry Vitamine develop the protective capacity on germination Further research on this complex problem will show, probably, that each deficiency disease is produced by the absence of a specific Vitamine As the group of conditions known as Malana is divided into Quartan, Benign, and Malignant Tertian, according as a particular form of parasite is present in the blood, so we may be able, on the other hand, according to present knowledge, to subdivide the group of deficiency diseases according as a specific Vitamine, eg, of Beil beil of Sening, etc, is not available for the metabolism of the body Thus the absence of the Scurry

Funk (14) in continuation of his previous work has investigated yeast for Vitamine. He considers that Vitamine must be regarded as a base probably belonging to the pyramidine group, and has the following formula.

The chemical properties of the curative substance suggest that it forms a constituent of nucleic acid Edie, Evans, Moore, Simpson and Webster (15) have separated from yeast a curative substance which they call Torulin, and the formula for the

crystalline product is N (CH<sub>s</sub>)<sub>s</sub> C<sub>4</sub> H<sub>7</sub> O<sub>2</sub> (HNO<sub>3</sub>)

Funk found that so minute a dose as 40 mgm of the Vitamine was not only sufficient to cure a pigeon, which had developed neuritis after being fed on polished rice, but was able to maintain the animal in health for 12 days when the polished rice was continued. Funk considers that the Berr-berr Vitamine is necessary for the metabolism of the nervous tissues. The want of

this substance in the food forces the animal to get it from its own tissues. The result is an enormous loss of weight. After this available stock begins to be scarce there is consequent breaking down of the nervous tissue, with the result that nervous symptoms such as are observed in Berr-berr manifest themselves.

Vedder (16) in a recent paper states that he failed to obtain the neuritis-preventing substance in the Phosphotungstic acid precipitate, but as his method differed slightly from that of Funk's he does not regard his work as disproving the statement of Funk that the curative substance is precipitated by Phosphotungstic acid concludes that the neuritis-preventing substance is a most delicate compound and that chemical manipulations with this substance must take place only under certain, as yet undetermined, conditions if they are to be successful. He also showed that the neurris-preventing substance is not volatile, but is destroyed by heat, and that it is neither an morganic salt nor an alkiloid interesting to note in this connection that Cooper (17) found that strychnine had no curative properties, but, although the symptoms of polyneuritis remained as acute is ever, it was able to prolong the life of the birds for periods from two to five days. In view of the fact that Indine is an important constituent in the thyroid secretion, and in smaller amounts is found in milk, Vedder (18) made observations to determine whether or not Iodine had any protective capacity against experimental neuritis his experiments showed that it was quite inefficient in this respect.

# Methods of Determining the Profective Value of Articles of Diet.

### (a) By feeding experiment

In the history of the elucidation of deficiency diseases the work of Eighman and Axel Holst will always stand out prominently because it has given us definite experimental methods for determining what is the anti-neuritic and anti-scorbutic values of a given article of diet. Eighman (19) working in Batavia and Java, 18.9-1897, showed that neuritis could be produced in a definite time in pigeous by feeding them on polished rice

Axel Hol-t and Frolich (20) showed that guineapigs weighing over 350 grams fed on oats and

water develop scurvy

Using these two methods we can determine exactly the amount of a given article which is required to protect an animal from experimental neuritis, or scurvy. A list of articles of food can thus be drawn up showing the protective value of each. Such a list is of great practical importance to the administrator dealing with questions of public health, and also to the clinician. The latter can select articles very rich in Vitamines for the treatment of his cases of these diseases, eq, in beir-beir, yeast or mung dalor an extract of these can be made, Fraser and Stanton (21) recom-

mended for the treatment of berr-berr an acidulated alcoholic extract of rice polishings, a dessert spoonful of which equals 2 ozs of fatfree polishings and is the daily dose for an adult suffering from berr-berr

# (b) By Chemical examination—Estimation of $P_2$ $O_s$

In addition to the experimental test the estimation of the phosphorus content is a useful method of determining the protective value of a food During my experimental researches on epidemic dropsy M: D Hooper, FOS (22) determined the amount of  $P_2$   $O_6$  in various grains used as articles of diet. The experimental animals fed onfoodstuff with a low Ps Os index invariably developed neuritis, whilst those fed on materials with a high P2 O, index remained healthy Although the Vitamine does not contain phosphorus yet the determination of the P2 O5 content serves as an indicator of the anti-neuritic value of a particular grain Rice having a P2 O, index below 0 1 per cent is dangerous. It has to be appredicted, as will be shown later, that the subse quent tre itment of the rice, cooking, washing, etc. may still further lower the index and this must be The same food-stuff may, therefore, allowed for show a varying index in the raw and cooked condition

The isolation of the active substance is, as Cooper (23) points out not jet a practical proposition as it exists in such minute amount and is so difficult to separate

# DISTRIBUTION OF PROTECTIVE SUBSTANCES IN VARIOUS FOOD-STUFFS

In my researches (24) I showed that the mung dal of India had a high P.O. index and was markedly protective against experimental neuritis

Cooper (25) has recently contributed a valuable piper on this question. He compared the amounts of various uncooked food-stuffs required to be added daily to the polished rice diet to prevent, firstly, the occurrence of polyneuritis in pigeons of an average weight of 350 grams for 50 days, and, secondly, any appreciable loss of weight.

The following table from his paper shows the results of his observations —

Food stuff«	quire	tions re i to pre polyneu	Daily r quired vent weight	loss in
r oon stung	In terms of natu ral food- stuff	In terms of dry weight	In terms of natu ral food stuff	In terms of dry weight
	$\mathbf{Gms}$	Gms	Gms	Gms
Reef (Water content 75%)	20	5	20	5
Ox heart ( 60%)	5	5 2 5 2 5 1 5 0 5	$\begin{smallmatrix} 5\\3  6\end{smallmatrix}$	0 6-1 2
Sheep brain ( ,, 80%)	12 10 3 25	50	10	0 6-1 2 2 5
Fish (Hake) ( ,, 80%) Egg yolk ( ,, 50%)	3	<b>1</b> 5	íŏ	5
Venue (prepared) ( 5%)	25	$\bar{0}\bar{5}$	25	05
Lentils ( ,, 12%)	15	3	3)	6
Unhusked (,, 12%)	3 75	3 25	7 5	65
ਜ਼੍ਰੀ Husked	5	4 5	10	9

From this table certain interesting facts emerge, it will be seen, in the first place, that the protective substances are very irregularly distributed, and, secondly, comparing the antineuritic value of the food-stuffs it will be seen that beef and fish are deficient in protective substances That fish, flesh should be deficient in vitamine is interesting. I recollect that an objection raised to my conclusions in regard to the etiology of epidemic dropsy was that Bengalis eat fish freely, and this food ought to have compensated for the absence of protective bodies in the rice of the diet Cooper's (25) investigations show that fish is most inefficient in this respect Yeast it will be seen is highly efficient as a protective food and should be used in the treatment of this condition Dired pulse (lentils) and a husked cereal (barley) are equal in anti-neuritic value

In pigeons fed on polished lice both progressive loss of weight and neuritis occur(26). Cooper(27) considers that the substance which prevents loss of weight differs from the substance which prevents neuritis. He has arranged the foods investigated by him into 3 classes—

Class 1 — Food-stuffs inefficient in both capacities, polished lice, beef

Class 2 — Food-stuffs efficient in both capacities, yeast, heart, brain

Class 3 — Food-stuffs efficient in preventing polyneuritis but less efficient in maintaining body-weight Egg volk barley lentile

body-weight Egg yolk, bailey, lentils

Vedder (28) has shown that the anti-neuritic substance is lacking in onions and cotton seed oil, and adds that it appears quite possible that many other articles of tood are similarly deficient

In regard to scurvy it is important to note that the protective substances are only tound in fresh food, dried material being completely valueless Azel Holst and Frolich (29) showed that fresh potatoes, apples, lime juice, carrots, cubbige, and leaves of lion's tooth (leontodon taraxacum) contained protective substances against seurvy is interesting to note that Funk(30) points out that lime juice although poor in Vitamine yet the latter appears more stable than that in vegetables Again Fuest in Holst's laboratory has shown that the sourcy protective substance develops when grains germinate and disappear again on He suggested that on boardship a store of dried grain should be kept, and on long voyages where no fresh regetables were mailable the grams might be allowed to germinate and then added to the diet with a view to preventing semiy Funk(31) has demonstrated the presence of bert-bert vitamine in milk Frolich(32) lins shown that pastemised milk (heated at 70°C) prevents sensity, but milk heated for 10 minutes it 88°C loses its protective power entirely. Funk(33) states in regard to milk, "this vast amount of evidence suggests that the real physiological difference between the raw and boiled

milk is not in the destruction of enzymes, antibodies and changes in proteins, but in the content of vitamine" and, also, "the reaction of the milk, the natural content of the vitamines in cow's milk, which of course depends entirely on the content of vitamines in the cow's food, are further factors of which we do not know the importance"

Andrews (34) concludes that infantile berrberr is due to the deficiency of vitamine in the mother's milk, and this in its turn is due to the absence of protective substance in the woman's diet. Hence the necessity of attending to the diet of women of the poorer classes in pregnancy

# EFFECT OF VARIOUS CONDITIONS ON THE PROTECTIVE SUBSTANCES

From the practical point of view it is important to know the effect of various conditions on these bodies. Some have been referred to incidentally already, but it will be convenient to consider them in more detail.

- 1 Heat—Gryns (35) had shown that food-stuffs when heated to 120°C lose their protective power as regard berr-berr. Cabbage heated to 110°C loses completely its antiscorbutic power, and the juice of the cabbage was inactivated at 60°C to 70°C showing, as Axel Holst (36) points out, that the antiscorbutic capacity is much more "thermo-labile" if the juice is pressed out of the leaves than when it is inclosed in the intact cells. Lime juice vitamine is not destroyed after boiling for one hour, as Frolich has shown milk loses completely its protective power against scurvy by heating at 98°C for 10 minutes. Hence the importance of not heating these articles more than is necessary.
- 2 Drying—As we have seen drying completely removes the scurvy vitamine. Thus an explanation is afforded of outbreaks of scurvy and ship berr-berr on vessels during long voyages on which only dried food-stuffs are available. Hence it will be seen that foods which have been stored for prolonged periods should be avoided as articles of diet.
- Reaction Sn Almoth Wright and Prof Torup of Christiama consider that curvy is an Axel Holst's work shows that this view is no longer tenable. It is interesting to note in this connection the effect of acids on the piotective bodies of scurvy. As already stated lime juice vitamine stands boiling for I hour Raspberry juice (Dr Furst) and Sorrel juice Reichboin-Kjenneiud)  $(D_1)$ are both acid and strongly antiscorbutic and a temperature of 110° C for 1 hour without affecting the seurcy protective substances. By the addition of acid to cabbage and lion's tooth juice the thermo-stability of the protective bodies is By boiling cabbage in 05 per cent citric acid water a strong extract of antiscorbutic substance is obtained (37) Furst tried whether

food which produced an alkaline ash had any antiscorbutic property He found it had none

From what has been mentioned above it will be evident that the final value of food-stuffs depend to a considerable extent on methods of cooking, storage, washing, etc., as the protective substances may be destroyed or removed by any of these means, just as they are removed in the case of rice by the mechanical operation of polishing This important fact is probably not sufficiently appreciated

Effect of Absence of Protective Substance FROM THE FOOD ON OTHER DISEASES

From the foregoing it will be obvious that recent research on this subject has opened up an entirely new line of country, the subject is of great and far reaching importance When we realise that the absence of certain substances, which are present in food in very minute quantities, is capable of producing profound pathological lesions we can appreciate the need of carefully These bodies cannot studying these substances be regarded merely as foods but their rôle is rather that of "activators" or hormones (38) We know the extremely important part played by the latter in the internal secretions of the various organs of the body The question arises will the absence of these substances from the diet piedispose to disease, or diminish the resisting power of the body after infection, and so increase the severity of the malady elation it is interesting to note that Bassett Smith (39) employs yeast in 2 drachm doses twice daily in the treatment of the neuritis of Malta fever He states

"It may be that in this fever the neuritis is not directly due to the toxic action of the M melitensis on the nerve cells as was believed, but that there is a diam on the neive tissue to produce the necessary vitamine required in health 'Yeast,' which ap parently contains more than one 'vitamine' may prevent this loss in the nerve tissue it also appears to have a beneficial effect in increasing the number of polymorpho-nuclear cells"

The explanation of the beneficial action of yeast in various diseases may be found in this fact, as our knowledge of this subject increases it may be shown that unsatisfactory results in the treatment of many chronic diseases may be materially improved by the supply of the appropriate vitamine

It is well-known that a form of glycosuria (diabetes) is very prevalent particularly amongst the more intelligent Hindus (rice-eating), and the diet of this class is low in "vitamine" content. It may be that future research will show us that this disease is dependent on the absence from the diet of an appropriate "activator" or hormone as a result of which the machinery of the metabolism is interfered with The reported beneficial effect of yeast in the treatment of diabetes is interesting in this respect The suggestion may possibly give a lead in the working out of this complex problem.

Funk considers that rickets may be induced by the deficiency of protective substances and the subject is one requiring further investigation

The etiology of a disease, apparently connected with defects in diet, which is at times prevalent in India, especially in the Central Provinces, Lathyrism, awaits a scientific elucidation

A SURVEY OF THE ANTI-NEURITIO AND ANTI-SCORBUILC VALUES OF FOOD-STUFFS NECESSARY

From what has been mentioned in this paper it will be at once become apparent that in respect of every diet it is necessary to ask what is its vitamine value, and this question assumes greater importance in India with its great lice-enting communities as their vitamine margin is always very limited and they are liable, in certain cucuinstances, particularly adverse economic conditions, to become unable to meet by their food the demands of their system for these substances, and, consequently, the needs of the body must be met from the tissues of the individual himself with the result that he soon manifests signs of one or other of the deficiency diseases, and short of this he may be predisposed to other If a list were available showing the anti-neuritic and autiscorbutic values of all the va ious food-stuffs, it would be possible to constiret diets which would be tree from danger in this respect As Vedder points out (40) berr-berr may develop in men who are receiving what is supposed to be a balanced ration, provided that none of the components of that ration contuins the neuritis preventing substance is a matter of very considerable importance to those who are responsible for the rationing of large bodies of individuals, prisoners, soldiers,

The necessity for continuous research on this important problem in medicine is obvious

E D W GREIG

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# Coppespondence

### INFELIX AGER

To the Editor of "THE INDIAN MEDICAL GAZETTE"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In your leader entitled 'Infelix Opportunitate," which appeared in your issue for Dec 1912, you refer to state ments mide by Prof W J Simpson and myself concerning the scheme evolved by the Education Dept of the Govt of India for no less purpose than "there organization of the Sanitary Services throughout India" I suggest, and I am authorized by Prof Simpson to state he agrees with me, that now the benefit of your opinion has been afforded your readers, the opportunity would be felicitous for your enabling them to judge for themselves what these statements really were, by publishing our letter as it appeared in "The Times" of the 14th Oct In case this may not be available in your office, I enclose a copy

Yours faithfully,

W G KING.

COLONEL, IMS (1et)

(Copy of letter published in "The Times," London, 14 10 12)

INDIAN SANITARY REFORMS To the Editor of "THE TIMES

Sir,—According to the most recent statistics available, the mortality rates of British and Indian soldiers and Indian convicts respectively are 466, 489 and 17 per thousand. These rates exhibit an enormous saving of life when compared with those ascertained in the sixtes, namely, 69, 44 and 96 per thousand. At the same period the mortality of the civil population was believed to range from 37 to 81 per mille, but at the present time, although in localities at lower minimum is frequently found the maximum is at times exceeded. In 1910 the rate for all India was 33.20 per mille, or more than double that in England and Wales for the decade ending that year. The remarkable results in the British and Indian armies and gross are undoubtedly due to universal and systematically applied sanitation, whilst with the civil population such measures is have been attempted have been local, partial, and spasmodic, and have therefore failed to secure widely marked results. There were 16 million deaths from facets" (chiefly malarial), plague and cholera from 1908 to 1911 inclusive.

It is obvious that the first step towards a successful ampaign against preventable sickness and death must be the organization of an effectively administered executive similarly service. Your summary of the 19th ult showed that (after representations stretching from 1863 to recent days by various authorities including former Secretaries of State), the Government of India are about to move in the matter. Their resolution on the subject allows it to be believed that the proposals represent no mere stop gap, but it is scheme for the general reorganization of the sanitary service throughout India. How far is this comprehensive condition likely to be fulfilled.

Under the proposed scheme the Sanitary Commissioner with the Government of India, instead of becoming, as a minimum requirement, the representative head of the sanitary service, from the position of independence insisted

upon by the Secretary of State in 1904 is, by a retrograde step, through into a subordinate position under the head of the medical service. This is not a temporary measure pending further elaboration of the scheme. In defence, the appointment in 1865 of Sanitary Commissioners for the Presidences wherever in India (except for a short period in one Presidency) similation has been of sufficient import

in one Presidency) similation has been of sufficient import ance to demand a separate Sanitary Commissioner the principle of placing that officer directly under the Government he serves, "and no other authority," has been accepted by the Secretary of State, and has been put in practice by the Government of India's own orders.

Research, in sanitary interests, has been removed from the hands of the Sanitary Commissioner on the petty excuse that the younger bacteriologists desire a closer connection with hospitals and also because the increasing work and arduous life of Sanitary Commissioners under local Governments do not and recruiting for such posts. Yet the first named obstacle can be met by the issue of departmental ments do not ud recruiting for such posts. Yet the first named obstacle can be met by the issue of departmental orders in the provinces where difficulty has been experienced and the second by more generous terms being offered to men who devote their lives to sanitation. In effect, the Sanitary Commissioner with the Government of India has been reduced in this organization scheme to the condition of a technical assistant under an officer already burdened with the sufficiently important demands of curative medicine The whole arrangement is as incongruous as if the medical officer of the Local Government Board of England were required to administer the hospitals and medical colleges of Great Butain, and he in his turn was controlled in sanitary matters by a medical consultant. With the subordina try matters by a medical consultant with the subordina tion of the Sunitary Commissioners a scheme of reorganization is proposed. Eight additional Deputy Sanitary Commissioners are to be allowed, with the result—if area be considered—of providing three whole time Government inspecting sanitary officers for the equivalent of Great Britain and Ireland. Their pay judging by existing standards in India, is insufficient to attract men who will regard the appointment otherwise than as a matter of temporary expediency. The same may be said of the few health

ards in India, is insufficient to attract men who will legical the appointment otherwise than as a matter of temporary expediency. The same may be said of the few health officers who will be appointed to major municipalities. Men of the class of chief sanitary inspectors are to be appointed in lieu of health officers to second class municipalities, and the employment of specially—trained sanitary inspectors in all municipalities is to be encouraged. This is the total scheme declared to be a "general reorganization of the sanitary services throughout India." It deals with about 17 millions (or 7 per cent of the total population of India) inhabiting 717 spots in an area of 1,152,894 square miles, and leaves the sanitary fate of 227 millions uncuted for. The scheme gives no real executive sanitary service to India, and will have no influence in checking or preventing the ravages of cholera, plague or malarra, or other of the preventable diseases of India. In a country where the people have not at birth an expectation of more than 22 35 years of life or 19 6 years less than possessed by the males of Great Britain, the deficiencies of the scheme are to be made up for by a proposal to educate the people. This policy with its sequestration of available funds, is what might have been expected, since among other extraordinary arrangements, sanitation is placed under the Educational Department of India. In the absence of concemitant sani arrangements, sanitation is placed under the Educational Department of India In the absence of concomitant sani tary mersures, money must be wasted in educating a people who have no better expectation of life as a result of existing

unsunitary environment

W G KING, COL, IMS (1et),

For merly Sanitary Commissioner with the Government of Madras

W J SIMPSON.

Professor of Hygiene, King's College, formerly Health Officer for Calcutta

To oblige Col King and Dr Simpson we publish this letter to "The Times" in full, although it was freely quoted in all the Indian newspipers. We still think that the attack on the Government of India was untimely in that it came at a time when it seemed as if a real advance was really going to be made —ED, I M G]

### THE NASTIN TREATMENT OF LEPROSY To the Eddor of "THE INDIAN MEDICAL GAZETTE"

Sil.,—Under "Current Topics" in your Feb number (1913), you review the report on the treatment of Leprosy by Nastin submitted in July 1912, to the Government of Bengal, by the Inspector General of Civil Hospitals

Will you kindly allow me to make the following brief criticism of Major Megan's trial of Nastin and his conclu

sions as to its value which form the chief matter of the above report

(1) Major Megaw tried Nastin in only 14 cases

small number on which to base conclusions

(2) The average length of treatment under his own observation was 4 months. The maximum was 5 months. This is surely a biref trial to give to a remedy for a very chronic disease which is known to be slow and variable in its action.

(3) On this trial of Nastin in 14 cases for an average period of 4 months an unfavourable pronouncement has been made on a method of treatment which has been much noise exten sively tried elsewhere and favourably reported on by most of those who have tried it

One of the most extensive trials in India has been made in the Sylhet Leper Asylum, where Nastin has been in use for

I am about to submit the official report for this asylum on the results of Nastin for 1912 with conclusions based on —

31 years' use 48 cases treated for an average period of 131 months

including

26 cases treated for over one year and 5 cases treated for

over two years As regards results —
8 cases have been "cured" so far as to lose all symptoms which cause inconvenience and to be able to resume their ordinary work and occupations

13 have been greatly improved
10 have been considerably improved
12 have been appreciably improved
Only 4 have got worse and 1 remained stationary

now used Nastin for two years in the Sylhet Asylum, and from my experience I should say that for a fair trial in most cases it least a year's treatment is necessary, and in many cases treatment must be continued for 3 or more years

I therefore ask your readers to awart the publication of the sylhet report for 1912 and not to condemn Nastin on Major Megaw's 4 months' tirds, even though his conclusions have been embodied in a report to Government by the Inspector

General of Civil Hospitals of Bengal

Yours, etc.,

L B SCOTT, BA, MD, DPH, CALL, IMS

## THERAPEUTIC NOTICES

THE NEW SCLERECTOME

By Mi Percy C Baidsley MA, ML, IC, Demonstrated at the Ophthalmological Society, London, July 10th, 1912 and at the Ophthalmological Congress, Oxford, July 19th, 1912

Messis Down Bros will reset the Keratome blade at any time, exactly as any other Keratome is reset

## 'TABLOID' BRAND ADJUSTABLE HEAD DRESSING

Everyone who has had to apply it, knows the disadvantages Everyone who has had to apply it, knows the disadvantages of the oldinary roller bandage as a means of fixing diessings on a head wound. It is difficult to put on and difficult to keep in position. Of special interest and value, therefore is the 'Tabloid' adjustable head dressing, introduced by Messis Burroughs, Wellcome & Co., which promises to abolish all troubles connected with bandaging the head. It consists of a cap to fit over the head with a length of bandage attached for fixing the cap. A pad of double evanide gauze is supplied along with the head dressing. This is applied to the wound (previously washed or otherwise treated), the cap is slipped over the head, the bandage treated), the cap is slipped over the head, the bandage portion passed round the back of the head, across the force portion passed sound the back of the field, across the fore head, and back to the starting point—where it is fastened with a safety pin—and the thing is done. The whole operation is exceedingly simple, and the result is excellent. The 'Tabloid' head dressing does not slip or readily become displaced and it causes the patient little or no inconvenience or discomfort. For first aid or field use nothing more admirable could be represented. mnable could be conceived

# Service Motes

#### CRIMLA AND MUTINY VETERANS

THE names of officers who served in the Crimea and in the Mutiny are now distinguished in the monthly Army List, by the letters C and M prefixed to their names. The British Medical Journal of 8th February 1913, contains a list of the medical officers, in all thirty six, who are thus distinguished Thuteen of them are officers of the I M S, all of whom served in the Mutiny, one, Surgeon Major R Bousterd, in the Crimea also

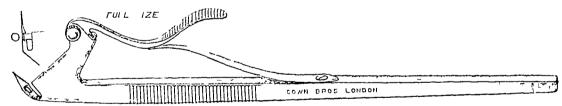
The thit teen who belonged to the I M S are —

Benyal, J Fau weather, J H Loch, C Plauck, Sn James
Thounton, T S Verle and G A Watson

Madras, G Bidie, Sn C Colvin Smith, W A Smith
Winne, S J Wyndowe

Benker B Barrete C Louit E Su ton

Bombay, R Boustead, C Joynt, E Sexton
One of these officers, T S Verle, died on 1st December 1912
In addition, however, to the thirteen enumerated above, at least eleven other officers of the I M S are still shewn as living in the list of retried officers in the Indian Anny Living Toward 1912 call of when several in the Matter. List for January 1913, all of whom served in the Mutiny,



This Instrument consists of two parts

A narrow bladed Keratome, with a hole drilled through the blade

b A punch attached to the handle of the Kenatome (work ed with a lever and ratchet) which descends into the hole

A conjunctival flap is turned down to the conner and drawn or the corner in the usual way. The Keratome blade is over the corner in the usual way. The Keiatome blade is inserted through the sclera into the interior chamber, and pushed forward till the piece of sclera in front of the cut comes under the punch. The level is then pressed by the hist finger and the punch removes a circular piece cut of the sclera, which remains in the hole of the Keratome blade and is withdrawn with that blade A peripheral indectomy can now be done if desired (and in my opinion, should always be done) through the Keratome opening. The conjunctival flip is then replaced. In the earlier models, the sclerectome was a right angled Keratome with a punch. The present instru a right angled Keratome with a punch The priment is a very great improvement on the former

It is very much easier to manipulate, in fact, it is as easy as an ordinary Keratome When the Keratome has been inserted, the punch cuts down on to a solid fixed base, there fore the trephine cannot wound any other tissue than that

intended

In secondary glaucoma, due to mits, this double purpose instrument, has been especially useful. In all cases, its use shortens very much, the length of the operation.

Objections were at first raised to the supposed difficulty in resharpening the scleretome. Now, after prolonged experience, I can state that the Kentome blade remains sharp for a great number of operations, and the cutting life of the for a great number of operations, and the cutting life of the punch is almost limitless, supposing ordinary surgical care to be exercised

one, W H Harris, in the Crimer also His war services are one, W H Hailis, in the Climer also His war services and duly recorded at the end of the Army List, those of the others are now not so, having either dropped out, or never having been entered. Their names and services are as follows, the dates in brackets being those of their first commissions. Hallis and McLeod belonged to the Madas service, the others were Bengal men. Three, however, Caldwell, Hayes and McLeod, served in minor operations only, not having taken part in any of the more important.

Caldwell, Hayes and McLeod, served in minor operations only, not having taken part in any of the more important Carter, F, Surgeon Major (4 August 1855), Mutiny, with Punjab movable column under Birg Geni Nicholson, 18 May to 12 August 1857, medal

Caldwell, William Smith, Surgeon Major (29 January 1857), formerly William Caldwell Smith, Mutiny, in Sonthal and Bihar districts, and with Rohilkand Field Force from June 1858 to August 1859

Christison, Sin Alexander, Surgeon General (20 October

June 1858 to August 1859

Christison, Sir Alexander, Surgeon General (20 October 1851), Mutiny, with Gwalior Cavalry from 15 May to 2 July 1857, action with Nashabad rebels at Sasia, near Agra, with Meade's Hoise after taking of Gwalior by Sir Hugh Rose, medal with clasp Also Burma, 1852 53, medal

DeRenzy, Sir Annestey C C, Surgeon General (29 July 1851), Mutiny, Nishabad, Siege of Lucknow, March 1803, medal with clasp Also North East Frontier, Naga Expedition, 1879 80, C B, K C B, 26 June 1902

Grant, N J, Surgeon Major (18 December 1853), Mutiny, with Sonthal Field Force, dangerously wounded at Rohm, June 1857 Also North West Frontier, 1854 55, against Akakhel and Basikhel Afridis, and with Field Force at Annexation of Oudh, 1856

Harris, W H, Deputy Surgeon General (13 Lebruar) 1853), Crimea, 1855, siege and fall of Sebastopol, attack on

Reden, 18 June, and battle of Tchemava, medal with clasp, and l'unkish medal Mutiny, operations before Kalpi, capture of Lucknow, surrender of forts of Ahmati and

capture of Lucknow, surrender of forts of Ahmati and Thunkupur, and subsequent operations in Oudh, medal Hayes, W H, Surgeon Major, (4 August 1855), Mutiny, Koliising, wounded near Chaibasa, 14 January 1858

Macleod, A C, Surgeon Major (8 March 1841), Mutiny, Mactier, W F, Surgeon Major (8 March 1841), Mutiny, Mactier, W F, Surgeon Major (8 December 1844), Mutiny siege of Delhi, mentioned in despatches G O of 5 November 1857, and London Gazette, 24 November and 15 December 1857, medal with clasp Also Sutley campaign, 1845 46, with 42nd N I, ictions of Mudki, Aliwal, and Sebiaon, medal with two clasps, and Punjab campaign, 1848 49 actions of Ramnagar, Sadullapur, and Chinanwala, medal with clasp Pasks, C T, Deputy Surgeon General (26 August 1852), Mutiny, actions of Azamgarh, Ghagha, Kadwa, and Chanda, medal Also Burma, 1853, medal, and Bhutan, 1865, clasp Sutherland, P W, Deputy Surgeon General (6 May 1854), Mutiny, with Peshawar Light Horse and with Murray's Jat Horse, medal

Jat Horse, medal
Within the decade preceding the Crimean War and the Mutiny, two great wais, as fiercely contested, and as important in their consequences, were fought in India the Sutlej campaign or first Sikh war of 1845 46, and the Punjab campaign or second Sikh war of 1848 49 Two officers of the IMS are still hing who took part in these campaigns Macther's war services are given above. The the in Surgeon Market Portage Parameter Portage Parameter Portage Parameter Portage Parameter Para campaigns Mactier's war services are given above. The other is Surgeon Major Henry Benjamin Hinton, the dowen of the service. His war services include Gwalior, 1843, Sutley, 1845 46, actions of Badiwal, Alival, and Sobraon, medal with clasp; Punjab, 1848 49, and China, 1858 60. He appears not to have served in the Mutiny.

No medical officer survives who served in the first Afghan war, 1839 482. Hinton was then in India, but his regiment, the first Note took no part in the war, hour that ingred free

the 65th N I, took no part in the war, being stationed first

the 65th N I, took no part in the war, being stationed first at Dinapui, and afterwards in Arakan Surgeon Major H B Hinton—The note on this officer, given below, appeared in the Standard of 31st January 1913. Di Hinton is the senior, and by some years the oldest officer on the retired list of the I M S. The next seniority are Surgeon Major. Alexander Charles Macleod, who entered the Madras Service on 8th March 1841, and William Fullerton Mactier, who was born on 1st October 1822, and entered the Bengal Service on 3rd December 1814. Henry Benjamin Hinton was born on 7th March 1813, so

entered the Bengal Service on 31d December 1844

Henry Benjamin Hinton was born on 7th Maich 1813, so if he is still living, will have completed his century before these lines are published. After taking the MRCS in 1835, he entered the Bengal Medical Service as Asst Surgeon on 14th January 1839, became Surgeon on 31st December 1852, and Surgeon Major on 14th January 1859, retiring in 7th Maich 1868. His was services include the Gwalior war, in 1843, the first Sikh war, in 1845, when he was present at the actions of Brahwal, Aliwal, and Sabraon, the second Sikh war in 1848, and the second China war, in 1858 60. He was actually serving in India at the time of the first Afghan war, though he was not hunself sent to Afghanistan.

Afghan war, though he was not himself sent to Afghanistan "The Governor General during his stry in South Australia has paid a visit to Surgeon Major Hinton, formerly of the Honorable East India Company's Service, who will be a hundred years old in a few months' time Major Hinton is at present in a private nuising home in North Adelaide, suffer and form the effects of a greater that the half of the surgestion of the surgestion of the surgestion of the surgestion. present in a private nuising home in North Adelaide, suffering from the effects of a severe accident which he met with several months ago. He was born two years before the battle of Waterloo, reads without glasses, and possesses a wonderful memory. His active military service dates back to the Mahratta war of 1843, and he liter any service in the second Sikh war. Muting and China Lord Denman enjoyed a most interesting that with the gallant old major."

This will be the third I M S officer to have reached 100 years, who has died in the past 15 years

SURGION JOHN MILITORD BARNETT, Bombay Medical Service, retired, died at Beylull on sea on 24th January 1913, aged 82. He was born on 28th September 1830, educated at Fdunburgh University and at Trinity College, Dublin, took the diploma of MRCS, and the degree of MD. Edunburgh, in 852, and entered the IMS, as Aest Surgeon on 20th April 1853, becoming Surgeon on 20th April 1853, becoming Surgeon on 20th April 1865, and retiring with only fifteen years service on 14th August 1868. He served in the Peisian war of 1856 57, taking part in the action at Kushab, where he was wounded, and in the bom bardment and capture of Mahammura, also in the Kathia war field force in 1860. unt field force in 1860

LIFUTFIANT COLONFI JOSHUA CHANTOI WHITE, of the Bengal Medical Service, refured on 22nd December 1912 He was born on 3.4 October 1864 educated at the Universities of Edinburgh, Bonn, and Heidelberg, took the MB and CM at l'dinburgh in 1887, the MD, in 1893, and the DPH at Cambridge in 1991 and entered the IMS as Surgeon on 30th September 1889 becoming Major on 30th September 1991, and Lieutenant Colonel in 30th September 1999. He served in the relief of Chitral in 1895, and received

the medal for that war, with a clasp He was in Civil employment in the United Provinces, and for some years past had held the post of Sanitary Commissioner

MAJOL HEPBERT JOSEPH RICHARD TWIGG, of the Indian MAJOL HEPBERT JOSEPH RICHARD TWIGG, of the Indian Medical Service, retired on 13th January 1913 He was born on 13th February 1870, took the MB, BCH, at Cambridge in 1897, and entered the IMS as Lieutenant on 27th July 1898, becoming Captain on 27th July 1901, and Major on 27th July 1910 The Army List assigns him no war service He was posted to the Western Command on coming to India, and was in civil employment in Bombay, holding the up pointment of Superintendent of Yerrowda Central Prison, but had been on sick leave since 13th January 1912

THI death of Surgeon General Colvin, I MS, Madias, another Mutiny Veteran, is reported on 2nd March 1913

THE Public Services Commission has asked for a combined note by the I M S, on the questions of its internal economy and reform. This is satisfactory, as a somewhat meticulous objection was taken to any combined action on the part of I M S officers in view of the King's Regulations

REWARDS-Good Conduct and Mentorious Service -A list is usued as an annexure to this order of India Army Orders, dated 20th January 1913

(1) non commissioned officers and men of the Indian Army and non commissioned officers of the Supply and Transport Corps,

(11) non commissioned officers and men of the Royal and

Indian Artillery,
(iii) Sub Assistant Surgeons of the Indian Subordinate

Medical Department, (iv) miscellaneous,

Who have been granted medals for meritorious service, with anunity, and for long service and good conduct with or without gratuits for the year ending 31st March 1913, under the provisions of Army Regulations, India, Volume I,

under the provisions of Army Regulations, India, Volume I, priagraphs 993 et seq.

Medul inscribed for Meritorious Service," with annuity
No 1214 1st Class Sub Assistant Surgeon M. Amirta nadan Pillai, Madras Establishment, vice No 1206 1st Class Sub Assistant Surgeon J. E. D'Cruiz, Madras Establishment, promoted, with effect from the 15th September 1911
No 686, 1st Class Sub Assistant Surgeon Ihsan Ali, Bengal Establishment, vice No 648 1st Class Sub Assistant Surgeon Thakur Singh, Bengal Establishment, promoted, with effect from the 15th October 1911
No 1220, 1st Class Sub Assistant Surgeon Michaelment

No 1220, 1st Class Sub Assistant Surgeon Muhummad Fakhi ud Din Sahib, Madias Establishment, vice No 1208 1st Class Sub Assistant Surgeon A Govindasa Pillai, Madias Establishment, deceased, with effect from the 3rd November

No 645, 1st Class Sub Assistant Surgeon IIIIh Bakhsh, Bengal Establishment, nice No 653 1st Class Sub Assistant Surgeon Kishan Chand, Bengal Establishment, promoted, with effect from the 20th December 1911

No 678, 1st Class Sub Assistant Surgeon Radiad din Khin, Bengal Establishment, vice No 622, 1st Class Sub Assistant Surgeon Sandar Singh, Bengal Establishment, seconded for civil employment, with effect from the 23rd December 1911

No 710, 1st Class Sub Assistant Surgeon Jumman Khan, Bengal Establishment, 1100 No 387, 1st Class Sub Assistant Surgeon Nam Singh, Bengal Establishment, promoted, with effect from the 28th December 1911

with effect from the 28th December 1911
No 701, 1st Class Sub Assistant Surgeon Shankardas,
Bengal Establishment, vice No 625, 1st Class Sub Assistant
Surgeon Pandit Nathu Ram, Bengal Establishment, pro
moted with effect from the 15th January 1912
No 682, 1st Class Sub Assistant Surgeon Nabi Ahmad,
Bengal Establishment vice No 626, 1st Class Sub Assistant
Surgeon Pandit Shankar Das Bengal Establishment, pro
moted with effect from the 16th January 1912
No 163 1st Class Sub Assistant Surgeon Krishna Harr,
Bombay Establishment, vice No 147, 1st Class Sub Assistant
Surgeon Gopal Narayau, Bombay Establishment, promoted,
with effect from the 13th February 1912
No 195, 1st Class Sub Assistant Surgeon Nabi Ahmed

with effect from the 13th February 1912
No 605, 1st Class Sub Assistant Surgeon Nabi Ahmed Sidiki, Bengal Establishment vice No 641, 1st Class Sub Assistant Surgeon Gauri Shrakar Bengal Establishment, promoted, with effect from the 10th March 1912
No 702 1st Class Sub Assistant Surgeon Pars Ram, Bengal Establishment, vice No 645 1st Class Sub Assistant Surgeon Ilahi Bakhsh Bengal Establishment, promoted, with effect from the 10th March 1912
No 707, 1st Class Sub Assistant Surgeon Mahendu Lal Garg, Bengal Establishment, vice No 633, 1st Class Sub Assistant Surgeon Shurakhan Lil, Bengal Establishment, promoted, with effect from the 18th April 1912

No 709, 1st Class Sub Assistant Surgeon Asad Ali, Bengal Establishment, wee No 654, 1st Class Sub Assistant Surgeon Sandhe Khan, Bengal Establishment promoted, with effect from the 5th May 1912

No 165, 1st Class Sub Assistant Surgeon Shaikh Milan Shaikh Rahim, Bombay Establishment, wee No 149 1st Class Sub Assistant Surgeon Dhondi Nagooji Vizune, Bombay Establishment, promoted, with effect from the 6th May 1912 May 1912

No 692 1st Class Sub Assistant Surgeon Nanakchand Anand, Bengal Establishment vice 1st Class Sub Assistant Surgeon Muzzan Husain, Bengal Establishment, pro

tant Surgeon Muzzan Husain, Bengal Establishment, promoted, with effect from the 10th May 1912

No 720, 1st Class Sub Assistant Surgeon Kh Bakhah, Bengal Establishment, vice 1st Class Sub Assistant Surgeon Pais Ram, Bengal Establishment, deceased, with effect from the 1st August 1912

No 724, 1st Class Sub Assistant Surgeon Debi Dass, Bengal Establishment, vice No 669 1st Class Sub Assistant Surgeon Halibans Lal Bengal Establishment, promoted, with effect from the 2nd August 1912

LIEUTENANI COLONFI W E JENNINGS, MD CM (Edin), DPH (Dub), IMS, is appointed as a member of the Bombay Medical Council, vice Lieutenant Colonel L F Childe, I M ', resigned

LIEUTFNANT COLONFL E JENNINGS, IMS. Superintendent, Central Prison, was on study leave from the 1st November 1912 to the 3rd January 1913

Major A T Gagr, ims, Director, Botanical Survey of India, is granted under Articles 233 and 260 of the Civil Service Regulations, privilege leave for one month and thirty days combined with study leave for twelve months and furlough under Article 308 (b) of the Civil Service Regulations sufficient to make the otal period up to twenty months, with effect from the 12th March 1913, or the subsequent date on which he may avail himself of it. which he may avail himself of it

The Curator will act as Director for Major Gage

THE services of Captain H H G Knapp, IMS Superintendent of the Central Iail at Rangoon, are placed permanently at the disposal of the Government of Burma, with effect from the 21st February 1910 for employment in the Jail Department

LIFUTENANT COLONEL JAMFS JOHN PRATT, Indian Medical Service, Bengal has been permitted by the Most Hon ble the Secretary of State for India to retire from the service, subject to His Majesty's approval with effect from the 27th December 1912

Lieutenant Colonel Platt has been appointed Lecturer on Tropical Diseases at the Westminster Hospital, London

"In the resolution of the Government of Indra in the Finance Department, No 124, dated the 12th May 1876, Assay Masters were permitted to return any fees received by them for assays made for private persons, after crediting 4 per cent to Government for the use of Government laboratories, chemicals, etc, and assigning to the members of their estab lishment who assist in such private assays such portion of the fees as they think fit. With the approval of the Secretary of State for India, the Governor General in Council is now pleased to direct that in future this private assay work shall form part of the official duties of Assay Masters and their staff and that the fees received for this work shall be credited to Government
2 The Cons

2 The Governor General in Council recognises that in the case of officers already employed in the Department the withdrawal of the fees without compensation would be inequitable, and has therefore decided that suitable allowances shall be given to them

3 The conditions under which assay work will in future be undertaken for private persons are laid down in the attached rules"

attached rules

pricks which is unfortunately rendering the I M S unpopular in the schools. In this case it has already been decided not to recruit for the Mint from the I M S.

CAPTAIN D G R S BAKER, IMS, to be specialist in Ophthalmology, 4th (Quetta) Division, with effect from 1st January 1913

MAJOR C W H WHITESTONE, RAMC, to be Deputy Assistant Director of Medical Services (Mobilization), 3rd (Lahore) Division with effect from 31st December 1912 nice Major J Gould, IMS, transferred

CAPTAIN J W HOUSTON, RAMC, to be Deputy Assistant Director of Medical Services (Sanitary), 1st (Peshawar) Division, with effect from 16th December 1912

LIEUTFNANT T H BONNAR, ISMD, Civil Surgeon, on leave, is granted finlough for six months, under paragraph 435 of the Army Regulations, India, Volume I, and Note 2 to Article 606 of the Civil Service Regulations, in extension of the leave granted him under Assam Administration Notification No 5444M, dated the 14th December 1912

CAPTAIN J J ROBB, I M S, was granted 111 months' leave

CAPTAIN W L FORSYTH, I MS, on 27th January joined the Madras jul department for training

CAPTAIN F NORMAN WHITE IMS, of the Bacteriological Department and a member of the Plague Research Commission acts as Sanitary Secretary to the D G I M S, rice Major McKendrick, IMS, going on leave

COLONEL R H FIRTH, RAMC, was appointed A D M S, Peshawai, from 1st December, vice Colonel S C Robinson (retired)

CAPTAIN W S MCGILLIVRAY, IMS, was appointed specialist in Otology, &c, in Meeiut Division from 6th was appointed November 1912

MATOR G Y C HUNTER, I MS, who was appointed to be Superintendent of the Buxar Central Jail in Notification No 7414M, dated the 30th December 1912, has been granted by His Majesty's Secretary of State for India a in thei extension of leave for six months

THE following postings and transfers are ordered in the Civil Medical Department, Burma —
Major J Good, IMS, on return from leave, to officiate as Ophthalmic Surgeon, General Hospital, Rangoon, in place of Captain E A Walker, IMS, transferred Captain E A Walker, IMS, to be Civil Surgeon, Merkila, in place of Major F V O Bett, IMS, transferred Major F V O Bett, IMS, to be Civil Surgeon, Bassein, in place of Captain E T Harris, IMS, to be Civil Surgeon, Tourgoon Captain E T Harris, IMS, to be Civil Surgeon, Tourgoon

Captain E T Harris, I MS, to be Civil Surgeon, Toungoo in place of Senior Military Assistant Surgeon and Honorary Captain J F Curran, transferred

ON being relieved by temporary fourth grade Sub Assistant Surgeon Lolit Mohan De, second grade Sub Assistant Surgeon Didacuddin Ahmed, in charge of the South Salmara Dispensity in the district of Goalpara redeputed for duty under Captain F P Mackie, IMS, Kala azar Research Officer, Assam

DR C A BENTLEY, Special Officer on Malaria Research, Bengal, was allowed privilege leave for one month, under Atticle 260, Civil Service Regulations, with effect from the 15th February 1913

MAJOR A B FRY, IMS, Special Deputy Sanitary Commissioner for Malaria Research in Bengal, 18 allowed privilege leave combined with furlough for seven months and twelve drys viz, privilege leave for two months and twelve drys under Article 260 of the Civil Service Regulations, and furlough for the remaining period under Article 308 (b) of those Regulations, with effect from the 17th March 1913

CAPTAIN J L LUNHAM, ME, BCh (RUI), IMS, 18 granted, from the date of relief, such privilege leave of absence as may be due to him on that date in combination with study leave for such period as may bring the combined period of absence up to nine months

LIEUTENANT COLONEL J B SMITH MB, MCh (RUI), DPH (Cant), IMS, has been allowed an extension by two days of the furlough granted to him in Government Notifications No 5990 dated the 10th October 1911, No 6711, dated the 9th October 1912, and No 8738, dated the 17th December 1912

His Excellency the Governor in Council is pleased to appoint Military Assistant-Surgeon Lionel Scott to do duty as Civil Surgeon, Jalgaon, as a temporary measure, pending further sadars. further orders

THE furlough granted to Lieutenant-Colonel L F Child, N B, I M S, in Government Notification No 353, dated the 14th January 1913, is furlough on medical certificate

LIFUTENANT M D A KUPRISHI IMS, is promoted to be Captain from 24th October 1912

THE retirement of Colonel William Alfred Corkery has effect from the 26th August 1912, and not 25th August 1912, as notified in the London Gazette of the 18th October 1912

THE services of Captain H Stott, MB, IMS, are placed at the disposal of the Government of Madras for employment as Surgeon to His Excellency the Governor of Madras

MAIOR S P JAMFS, MD, IMS, Secretary to Director General, Indian Medical Service (Samitary), is transferred to foreign service under the Government of Ceylon for a period of one year, with effect from the 23rd January 1913

COLONEL G W P DINNYS, IMS, Inspector-General of Civil Hospitals, Central Provinces, is granted privilege leave for 2 months and 10 days and in continuation leave on private affairs for 5 months and 20 days under paragraph 226, Army Regulations, India, Volume II, with effect from the 27th February 1913

LIEUTENANT COLONFL H E BANATVALA, I MS, Civil Surgeon Amraoti, is appointed to officiate as Inspector General of Civil Hospitals, Central Provinces, during the absence on leave of Colonel G W P Dennys, I MS, or until

LIEUTENANT COLONEL C H JAMES, CIE, FRCS, IMS, Officiating Civil Singeon, Simla (West), is granted privilege leave for one month, with effect from the 15th January 1913

LIFUTENANT COLONEL H A SMITH, WB, IMS, Chvil Surgeon, Simla (East), is appointed to officiate as Civil Surgeon, Simla (West), during the absence on leave of Licitenant Colonel C H James, CIF, FRCS, IMS, in addition to his own duties

MAJOR A G MCKENDRICK, MB, IMS, Secretary to the Director General, Indian Medical Service (Sanitary), sub motempore, is granted, with effect from the 24th February 1913, privilege leave for three months and in continuation furlough out of India for one year and six months and study leave for three months

CAPTAIN F N WHITE, M D, I MS is appointed to officiate as Secretary to the Director General, Indian Medical Service (Sanitary), during the absence on leave of Major A G McKendrick, I MS, and until further orders

THE following promotions are made, subject to His Majesty's approval —
LIEUTENANTS TO BE CAPTAINS, IMS, with effect from 29th January 1913

Rustam Hormasy Bharucha

Rustam Hormasji Bharucha
Framroze Jamsetjee Kolapore
Edward Galwey Kennedy, M B
Robert Forrester Douglas MacGregor, M B
Arthur Lewin Sheppard, M B
Paul Knighton Gilroy, M B
Joseph Arthur Alexander Kernahan
Maurice Lionel Corrie Irvine M B
Ernest William O'Gorman Kriwan, M B
John Valentine Macdonald, M B
George Liwrence Duncan, M B
Anath Nath Palit. F R C S E Anath Nath Palit, FR CSE Hubert Alan Hust Robson, MB Ralyan Kumar Mukerji

LIFUTFNANT COLONEL J M CRAWFORD, IMS, Civil Singeon, Benares, privilege leave, combined with furlough, for a total period of eight months and a half, from the 7th March 1913, or subsequent date

LITUTENANT COLONFI H B MEIVILF, I M 5, chief plague officer, United Provinces, to be Civil Surgeon of Bennies, rice Licutenant Colonel I M Crawford, I M 5, granted leave

('AlTAIN A CAMPRON I MS, Officiating Civil Surgeon on completion of his special plague duty at Ballia, to be chief plague officer, United Provinces, etce Lieutenant Colonel H B Melville, I MS

HIS Excellency the Governor of Bombay Council is pleased to make the following appointments — Lieutenaut-Colonel W E Jennings, M D, (M (Edin), n I H, I M S., on return to duty, to be Health Officer of the Port of Bombay

Lieutenant-Colonel I Crimmin, vc, cir DPH, IMS, on relief, to be Piesidency Surgeon, Third District, Bombay and in medical charge of the Common Pilson, House of Collection and Byculla Schools

CAPTAIN G FOWLER, IMS, civil surgeon, has been granted, by His Majesty's Secretary of State for India, leave on medical certificate for four months, in extension of the combined leave granted him by Order No 578, dated the 14th March 1912

ON return from the combined leave granted him by Orders No 2042, dated the 14th November 1911, No 1379, dated the 20th July 1912, and No 111, dated the 15th January 1913, Major A M Fleming, MB, CM, IMS, civil surgeon, is posted to Jubbulpore

ON relief by Major A M Fleming, MB, CM, IMS, Captain J M A Macmillan, MA, MB, Ch, B, FRCS, MRCS, LRCP, IMS, civil surgeon, Jubbulpure, is posted to Amraoti

We regret to learn of the death from pneumonia on 19th February 1913, of Major F D Browne, I Ms, medical officer 112th infantry He took the M B degree of Durham in 1893, entered the service on 26th July 1896, and he served for some time in the Jul department in the Andamans and in Bengul, and was appointed to the 112th infantry in July 1909

LIEUTENANT COLONEL F P MAINARD, FRCS, IMS and Lieutenant Colonel Henry Smith, MD, IMS, have been appointed Corresponding Members, to represent India at the XII International ('ongress of Ophthalmology to be held at St Petersburgh, August 10th to August 15th, 1914 The subjects for discussion will be (1) ethology of trachoma, and (2) the nutrition of the eye

CAPIAIN C F MARR, IMS, is appointed to officiate as medical store keeper to Government, Lahore Cantonment, vice Major A A Gibbs, IMS, proceeding on eight months' leave

CAPTAIN F S SMITH, IMS, is selected to undergo a course of training in serological work under Lieutenant Colonel W D Sutherland, IMS

CAPTAIN G I DAVYS, IMS, was appointed to be specialist in prevention of disease and in charge of the Brigade Laboratory at Jubbulpore, with effect from 1st February 1913

WITH the approval of the Secretary of State for India, the Government of India have sanctioned the abolition of the appointment of the Special Sanitary Officei at Army Head quarters (Assistant Director, Medical Services, "Sanitary"), with effect from the 1st December 1912

MAJOR W V COPPINGER, I MS, officiating Second Resident Surgeon, Presidency General Hospital was allowed privilege leave for one month, under article 260 of the Civil Service Regulations with effect from the 24th February 1913, or the subsequent date on which he may be relieved of his duties

DR RATANSHAW BOMANIEE KHAMBATA, MRCS (Eng), LRCP (Lond), DPH (Cantab), is appointed to be Deputy Sanitary Commissioner, Rajshahi Circle, Bengal, with effect, from the forencon of the 18th January 1913

This is one of the two extra appointments as Deputy Sanitary Commissioners sanctioned in accordance with the

new Sanitary scheme for India

The following IMS officers were granted the Diploman Public Health (DPH, of the Royal Collegeof Physicians London, on January 30, 1913, viz, Captain HMH Melhuish, Captain Clifford A Gill, and Lieutenant JC Rhaincha

CAPTAIN A WHITMORE, IMS, on return from leave is appointed Police Surgeon and Pathologist, General Hospital, Rangoon, vice Captain N D Sargol going on leave

CAPTAINS T CRUMP, I MS is appointed Civil, Surgeon, of Myaungmya, vice Di L G Fink, on leave

THE staff of the King George Medical College, Lucknow will be a strong one when completed in October next, riz, Major Selby, IRCS, DGO, IMS, Principal and Professor of Singery Major Spanson, MD, MRCP, Professor of Medicine, Lieutenant Colonel & T. Birdwood, MD, Professor of Obstetrics, Major H. J. Walton, MD, IRCS, DTM, Professor of Pathology, Captain A. E. J. Lister, MD, IRCS, Professor of Physiology, and Sahebzada Saiduzzuffer Khan, MB, Professor of Anatomy

UNDER Articles 233 (1), 260, 303 (11) and 308 (b) of the Civil Service Regulations, and Rules 2 and 6 of the Study Leave Rules, privilege leave for two months and six days combined with furlough for one yeu nine months and 22 days, and study leave for ten months, is granted to Captain T C study leave for ten months, is granted to Captain T C Rutherfoord, I MS, Civil Surgeon, Bilaspur with effect from the 5th March 1913, or the subsequent date on which he may wail himself of it

THE following changes in Bengal are due in March and April —
COLONEL G F A HARRIS, CSI, FRCP, IMS, takes 8 months' leave from 10th April
LIEUTEVANI COLONEL J T CAIVERT, IMS MB, MRCP, Principal of the Medical College, Calcutta, takes 8 months' leave and Lieutenant ('clonel Benett Deale, MRCP, IMS acts as Principal

nets as Principal
MATOR D McCal, MB, MRCP, acts for Lieutnant
Colonel Deare, as Professor of Matoria Medica and as Second

Physician Captain Shorten, IMS, acts for Major McCay as Professor of Physiology

MAIOR McGILCHRIST, I MS, will be put upon the special duty to inquite into the Phaim cology of the Cinchona products

THE HON'TER SURGEON GENERAL SIR C. P. LUKIS, K. C. S. I. D. P. R. C. S. I. M. S. Director General, Indian Medical THE HONTLIF SURGION GENERAL SIR C P LUKIS, K C S I, M b, FRCS, I WS, Director General, Indian Medical Service, is granted privilege leave for three months under raticles 246 and 260, "Ivil Service Regulations, combined with leave on private affairs for four months under paragraph 226, Army Regulations, India, Volume II, with effect from the 10th April 1913

THE services of Captain H C Brown, MP, IMS, Officiating Assistant Director, Central Research Institute, Kasauli, we placed temporarily at the disposal of the Government of the United Provinces

TIII following accelerated promotion is made, subject to His Majesty's approval

Captain to be Major, I M S, with effect from 27th December 1912 —George Fowler

Aimy Department Notification No 282, dated the 7th April 1911 Army Department Notification No 822, dated the 29th Septem ber 1911

WITH reference to the Notifications quoted in the margin the promotion to the present rank of Major William Lapsley, MB, published in Army Department Notification No 82°, and the 2°th Septem of 1911 This means Major Lapsley has got acceled the second of the 1911 This means Major Lapsley has got acceled the second of the 1911 This means Major Lapsley has got acceled the second of the 1911 This means Major Lapsley has got acceled the second of the 1911 This means Major Lapsley has got acceled the second of the 1911 This means Major Lapsley has got acceled the second of the 1911 This means Major Lapsley has got acceled the second of the 1911 This means Major Lapsley has got acceled the second of the 1911 This means the promotion to the present rank of Major William Lapsley, MB, published in Army Department Notification No 655, dated the 5th July 1912, and 1911 This means the promotion to the present rank of Major William Lapsley, MB, published in Army Department Notification No 655, dated the 5th July 1912, and 1911 This means Major Lapsley has got acceled the second of the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 This means Major Lapsley has got acceled the 1911 Thi inted promotion

LIEUTENANT COLONFI CHARLES HARDWICK LOUW MEYER, MD, Indian Medical Service, Bombay, is permitted to retire from the service, subject to His Majesty's approval with effect from the 5th March 1913

LIEUTENANT COLONEL JOHN MACFARLANE CADEIL, MI, Indian Medical Service, Bengal, is permitted to retire from the service, subject to His Majesty's approval, with effect from the 5th March 1913

LIFUTI NANT COIONFL MEYFR, entered the service on 31st March 1881 and has been employed chiefly in the Bombiy Medical College of which he was Principal

LIEUTI NANT COLONFL CADFIL entered the service on 1st October 1885 and has been employed mainly as a Civil Surgeon, U P

Dr E H HANKIN, chemical examiner, government analyst and bacteriologist for the United Provinces and the Central Provinces, is deputed to attend a course of Instituc tion in serological work in Calcutt i

CAPTAIN V B NESITELD, I M 5, Officiating Civil Surgeon, Bijnor, to officiate as chemical examiner, government analyst and bacteriologist for the United Provinces and the Central Provinces, rice Di E H Hankin

CAPTAIN A W HOWLITT, I M 5 Officiating Civil Surgeon of Mussoone, on being relieved, to officiate as Superinten

dent, Central Prison, Briefly, vice Captain W P G Williams, I W S

MILITARY ASSISTANT SURCION L. G. 1 MAINING IS M.D., whose services have been placed at the disposal of this Government, to be in charge of the Thomason Civil Engineering college dispensity, Rootkee

LIEUTHNANT COLONFL'S BROWNING SMITH, I MS, acts as Stritary Commissioner, Punjah, suce Lieutenant Colonel 1 Willkinson, I I CS, gone on leave

CAPTAIN N M WILSON I MS, was appointed Civil Surgeon of Muzuffergath from 11th February

CALLIEN H HALLIDAY, INS, Joined Lynlipur 29 Civil Surgeon on 9th February

MAIOR A W TURE FRCS (I), DPH, IMS, is granted, from the 1st Maich 1913, or the subsequent date of relief such privilege leave of absence as may be due to him on that date in combination with furlough for such period as may bring the combined period of absence up to nine months

MAJOR R W ANTHONY, MB, CM (Edin) 1 RCS (E), IMS, is granted, from the 25th March 1913, or the subsequent date of relief, such privilege leave of absence as may be due to him on that date in combination with furlough for such period as may bring the combined period of absence we to each t months. up to eight months

His Excellency the Governor in Council is pleased to appoint Captain J Smalley, M.B., I.M.S., on return from leave, to act as Civil Surgeon, Karwar, vice Captain J.L. Lumbam, M.B., B.Ch. (R.U.I.), I.M.S., proceeding on leave

HIS Excellency the Governor in Council is pleased to appoint Captain B. Higham, M.P., B.S. (Lon.) 1 M.S., to act as Chemical Analyses to Government at Bombay and Professor of Chemistry, Grant Medical College, Bombry, during the absence on deputation of Major W H Dickinson, M R B Ch (Edin), I M S, or pending further orders

## Motrce.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if requested

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## BOOKS, REPORIS, &c, RECEIVED -

Heisler & Anatomy Agents, Butterworth & Co., Calcutta
II Noguchis Scrum Diagnosis and Syphilis, Leppincott (o Agents,
Butterworth & Co., Culutta
The Prescriber (Vol. VI), 1912
Major McCurison's Mitroy Lectures on Goitre John Bale Sons &
Danielson Price 10s 6d
Major F L Munson's The Soldion's Loot
N. W. Pronter Report
kumath's Berr berr (M. D. Thesis), Madras
Campbell Highet's Climate of Bangkok (Local Gost, Bangkok)
Ledingham and Arkwight's Carrier Problem Arnold & Co., 12s 6d
net

net E R Cullog & Trentment after Operation (Hodder & Stoughton &

H Froude)
C M Moullin's Bradshiw Lecture H k I ewis 2s
Allon's Bacterial Discusses of Respiration H K Lewis 6/
Sir G T Bratson's Modern Wound Treatment I lyingstone & (o

## LETTERS, COMMUNICATIONS, &c , RECEIVED FROM —

Major Clayton Lane, IMB, Berhampur, Capt Berkeley Hill, IMB Madras Lt Col D G Crawford, IMB (retd), I ondon, Lt Col Sutherland, IMB Calcutta, Capt Hay Burgess, IMB Calcutta Colonel W G King, IMB, London It Col Birdwood, IMB, Luck now Major I L Hammond IMB, Maymyo, Major Rutherford, IMB, Blaspur Colonel P Hehir, IMB, Rangoon, Capt Fraser, IMB Madras Capt kennedy, IMB, Aborland, Dr. F. Raux, French Chandernagore, Major Clayton Ime, IMB, Rechampore Major Murison, IMB, Bombay, Capt Franklin, IMB, Cligit

## Griginal Articles.

# TRICHOSTRONGYLUS COLUBRIFORMIS (GILES 1892), A HUMAN PARASITE

By CLAYTON LANE, M D (Lond)
M JOR, I M S,

Civil Surgeon, Berhampore, Bengal

THE change of name of a human parasite is not a matter which is likely to provoke much enthusiasm in the minds of most medical men hope, however, that, for members of the Indian Medical Service, there may be, in the present instance, at least some compensating satisfaction in the feeling that there is, as I hope to show, definite proof that the correct name of the parasite, at present known as Trichostrongylus instabilis, Railliet 1893, is Trichostrongylus colubriformis, Giles 1892, and that it will, therefore, become permanently associated with the name of the latter, having been first found and described by Giles when he was a distinguished member of the Indian Medical Service It will follow that the particular form in which this paper is presented is due to the fact that it is intended for publication in a medical journal

For this reason it is permissible to begin by a reminder that one of the well-known principles which have been accepted by zoologists, in order to fix with stability the names of animals, is that the ciiginal name given to an animal shall be itspermanentname Every animal has, of course, two names, a generic name, and a specific name An animal may change its generic name if it is for one reason or another moved from one genus to another, but whatever happens it retains its specific name Once given and published, this is permanent, and may not be altered even by its While this rule prevents capitations changes, it introduces this corollary, that if the same animal has been described under different names, all the names except that under which it was originally described are irregular, and lapse

This is the case in the instance now under discussion. Among the group of several worms which are at the present time generally agreed upon as comprising the genus *Trichostrongylus*, Looss 1905 (which genus\* had not yet been split off from the genus *Strongylus* when the worms to be immediately mentioned were first described) there occur three names with which the present paper is concerned. They are as follows

In 1892 Giles (1) described Strongylus colubriforms from the intestine of sheep in Shillong (Assam) and Sanawai (Punjab) India, in 1893 Railliet(2) described  $Strongylus \, instabilis$  from the intestine of European sheep, and in 1895 Looss(3) described Strongylus subtilis from the gut of man and later of the sheep in Egypt, while Ijima(4) has identified it as fai East as Japan has since introduced the genus Trichostrongylus for these and allied forms, and has, after examining specimens of Tr instabilis, furnished him by Railliet, satisfied himself that instabilis and subtilis are identical, so that the name subtilis has automatically lapsed, and the worm has, from that time to the present, been known as Ti unstabilis It is only, therefore, with the identity or otherwise of Tr colubriformis and Tr instabilis that this paper is concerned

Regarding this point the present position has been concisely summed up by Ransom (6) in these "This species Trichostrongylus instabilis is so closely similar to Strongylus colubi iformis, Giles 1892, that it is very probable that Looss (5) however conthe two are identical siders that since there are certain discrepancies between Giles' description and figures on the one hand and Tr instabilis on the other, a further study of Strongylus colubriformis will be necessary to settle the question as to whether the two forms are identical or not" Looss' objections are these Firstly, the lengths of the worms differ, Looss finding that the males of Tr instabilis measures from 4 to 45 mm, and the females from 5 to 6 mm, whereas Giles' figures for colubrator mis are "nearly 6 mm" for males, and "about 8 mm" for females Secondly, the number of bursal rays in the 2 forms is different for Giles depicts (fig 1) 5 pairs of rays and an unpaned median one for colubriformis while instabilis possesses 6 pairs and an unpaired median 1ay, or 7 rays when seen from the side (fig 2) Since all bursate nematodes possess the same number of bursal rays,\* viz, 2 ventral, 3 lateral and an externo-dorsal on each side, and an unpaned bifurcate dorsal ray, it becomes à prion extremely likely that some error has crept into Giles diawing, and that Looss (5) conjecture that one of the rays has been omitted from Giles' figure is a conject one

With a view then to settling these points I wrote to Colonel Giles and asked him if he would be kind enough to allow me to examine some of his original material, and he very courteously furnished me with a few specimens of Strongylus colubriformis identified by and collected by himself at Sanawar They had been kept in absolute alcohol for 20 years and were consequently

<sup>\*</sup> Much of the modern alteration of names of worms is due to the fact that original genera were too wide, or were not natural ones. A good idea of what constitutes a natural genus may be most readily obtained in India by a comparison of Agchylostoma duodenale, easily obtainable from a large percentage of human beings in India, with A cannum and A ceulameum which are in my experience, inhabitants of practically every pairah dog in this part of India at least. The latter I have recently found in a human being. C. L.

<sup>\*</sup>The only apparent exception to this rule lies in the fact that very occasionally, and in certain genera, two of the rays may be fused, but even here the fusion is not absolutely constant not complete and can be detected with care

shrunken and very brittle, so that, partly on this account, and partly for the reason that their numbers were few, the data for the settling of the measurements of the worm do not appear to me to be very satisfactory. I shall, however, return to this matter later

It is, however, otherwise with anatomy of the The shapes of the spicules and accessory piece of the males and of the ovejectors and tail of the females are identical for colubrator mis, and for *instabilis*, as was anticipated by Looss (5), and as will be evident from a comparison of figs 8 to 12 Regarding the bursal rays, fig 8, shows all those of the left side with the exception of the ventro-ventral, nor does it show the unpaned dorsal, it illustrates the fact that the externo-lateral is the thickest, a distinguishing feature of Tr instabilis, fig 9 shows the position of the ventro-ventral ray, a position of isolation which is characteristic of the genus, while fig 11 shows the bifurcate dorsal ray, and all the rays of the left side except the ventro-The secondary bifurcations of the dorsal ray were not made out It will be noted that although, owing to the buttleness and distortion of the worms the result of then long stay in absolute alcohol, ro single view of all the rays which are usually visible from one side could be obtained, it was yet possible to ascertain that without doubt Trichostrongylus colubrifor mis possesses the usual number of rays of the bursate nematodes, and that their disposition and shape as well as the shape of the spicules, accessory piece (fig 10), and tail of the female (fig 12) are identical with that of Trichostrongylus instabilis In other words, the two names apply to the same worm

There is another point of difference between unstabilis and Giles' description (1) of Strongylus colubriformis which is not expressly mentioned by Looss but which may be here Giles in his description says, "the female is provided with a pair of semi-eliptical-\* alæ situated opposite the neck which is markedly constricted giving her the outline of a cobra," but he adds later that he is by no means sure that they are uniformly present even in females, and continues, "the determination of this point is rendered difficult by the fact that they are only visible when the worm is lying so that they project, when half turned round they cannot be seen at all, and this is the position in which the worm naturally lies have been able to make a satisfactory examination of one of the females which Giles sent to me, 10tating her under the cover so that she was visible first from the dorsum, and then from the side (figs 13 and 14), the alæ are absent, so

that Giles' doubt as to their constant presence When they exist, as they did in is confirmed most of the females sent me by Giles, their presence becomes explicable by the consideration of two points The first is one to which Looss (5) draws attention, namely, the ease with which the cuticle of members of this genus becomes raised into swellings if the worms are not killed while quite fresh, while the second is the statement of Giles (1) that the easiest way in which to find the worms is to begin the search by soaking the intestine for some hours in carbolised water, so that his worms could not have been quite fresh when killed

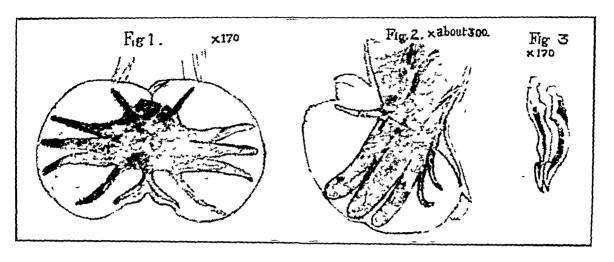
Circumstances have permitted me to approach this question of the identity of Tr colubriformis and Tr instabilis from quite another direction, by compelling me to pay an enforced visit to Kasauli, which place is about two miles as the crow flies from Sanawai It is of course a mere matter of chance whether a sheep living in those parts is slaughtered at one of these places or at the other, so that any observation on the prevalence of parasites which applies to one place will equally apply to the other Speaking of Ti colubriformis Giles (1) says "I have found it both at Shillong and Sanawar in every carcass completely examined " By the kind assistance of Capt Acton, IMS, Director of the Pasteur Institute at Kasauli, I was able to obtain the intestines of three sheep killed at Kasauli found in each one of these a number of specimens of a Trichostrongylus which is, as the drawings show, undoubtedly identical with Trichostrongylus instabilis I desire to lay great stress on this point In all I collected about 200 specimens, I examined under the microscope every individual worm, and they were all, without exception, specimens of the species at present known as Tr instabilis ings (figs 5, 6 and 7) show this point unquestionably. The form and arrangement of the bursal rays, spicules, and tail of the female are There were no specithose of Tr instabilis mens of any other members of the genus, To proboluous and To vitrinus were absent This second line of argument then runs thus -Giles invariably found in sheep killed in Sanawai a minute bursate nematode which is admittedly a member of the genus Trichostrongylus and which he named colubriformis In all cases of sheep (3 in number) which I examined within two miles of Sanawar I found a minute bursate nematode, a Trichostrongylus, there was only one species of that genus and that species in form and anatomy was identical with Trichosti on-That the worms I gylus unstabilis, Raillet collected were of the same species as those obtained by Giles admits of very little doubt, and if this observation stood alone it would afford the strongest presumption that the names

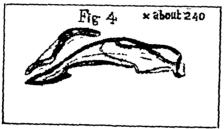
<sup>\*</sup> The expression "semi elipticalale" used in the original is an obvious misprint which has been corrected by Col Giles in a reprint which he has been good enough to send me

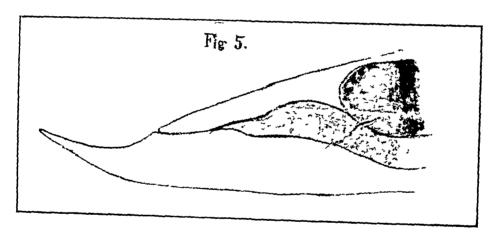
## TRICHOSTRONGYLUS COLUBRIFORMIS (GILES 1892), A HUMAN PARASITE

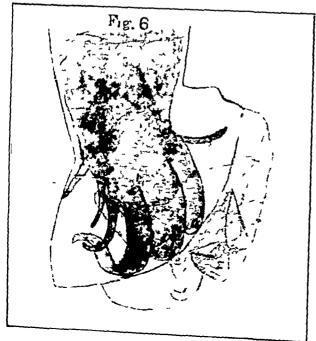
B1 CLAYTON LANE, MD (Lond), MAJOR, IMS,

Civil Surgeon, Berhampore, Bengal









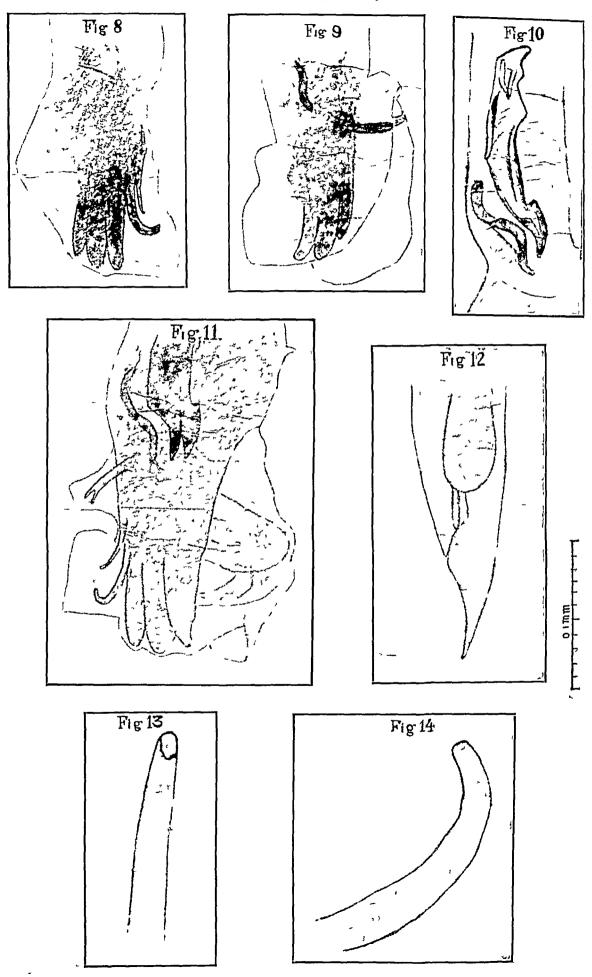


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## TRICHOSTRONGYLUS COLUBRIFORMIS (GILES 1892), A HUMAN PARASITE

BY CLAYTON LANE, MD (Lond), MAJOR, IMS,

Civil Surgeon, Berhampore, Bengal



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colubratorms and unstabilis have been applied to the same species

As circumstances are, it forms an interesting confirmation of the facts obtained by direct examination of the material collected by Colonel

The worms which I collected were obtained by sedimenting in water the contents of part of the bowel The worms, however, were still alive when placed in hot 70 % spirit for preservation, and none of them showed any cuticular swellings about the neck or elsewhere

There remains to be considered the question of the size of the worms My measurements and drawings have been made with a Zeiss' drawing apparatus, the measurements by placing a millimeter scale on the stage of the microscope, and drawing it at table-level by means of the apparatus, the worms being then placed on the stage and measured off against the drawing of the scale, the accuracy of which was assured by checking it against the squares of a Thoma-Zeiss' hæmocytometer

My own measurements of the average length of specimens of Trichostrongylus colubriformis collected by myself in the manner described above at Kasauli, are 7 mm for males and 72 mm for females, the variations being from 6 1 to 7 6 mm and from 6 2 to 8 4 mm respectively Giles'(1) figures are "nearly 6 mm " for males, and "about 8 mm' for females, and Looss'(3) 4 to 45, and 5 to 6 mm respectively It would appear that these differences in size must be due either to racial differences inherent in worms inhabiting hosts in different parts of the world, or to differences in methods of preservation Regarding the latter I have described exactly how the worms I have measured were preserved, but can give no information of the methods adopted by others Differences in methods of preservation, and in the constitution of fluids in which worms are placed subsequently, admittedly produce alterations in

Regarding the matter of possible racial differences it is perhaps not easy to speak with any great definiteness unless one has at one's disposal worms collected under similar conditions in different parts of the world, but in this connection the following points are offered for consideration

Agchylostoma duodenale, recovered from stools in Berhampore after the administration of Manson's mixture, average in length 10 12 mm for males and 12 46 mm for females, the limits being 8 to 116 mm and 10 to 17 mm respectively Other observers give figures as follows -Braun (7) 8 to 10 mm and 12 to 18 mm, Stiles(8) 8 to 11, and 10 to 18 mm. Looss (9) a maximum of 9 and 12mm for males and females respectively Looss qualifies his figures by saying that after a vermifuge dead or half dead worms may be ejected stretched to a length of 10 mm for males,

13 5mm for females as a maximum, so that the average in Berhampore for males is greater than the maximum in Egypt, while the maxima for undecomposed worms in Berhampore is considerably greater than that in Egypt It is not uncommon here to get females of 14 or even nearly 15mm long, while in one case I recovered one 17mm long, in perfect preservation, her chyle-intestine full of red blood, and her mouthcavity, and particularly her teeth (which could not be enlarged by decomposition) of a size corresponding to her length and bulk

The same holds good of Necator americanus from Berhampore My measurements for males are 8 to 9, with an average of 8 75mm, and for females 10 to 126, with an average of 113mm, while Stiles' (8) figures are 7 to 9, and 9 to 11mm, respectively, so that the average of the Berhampore female is larger than the maximum of the American

On the other hand I find that the female of Ovyun as vermicularis here has an average length of 8mm the limits being 72 to 95mm, whereas Braun (7) gives the size, presumably of European specimens, as 10mm There is then evidence for believing that worms of the same species may vary in size in different parts of the world, and the strongest reason to believe that differences in size cannot be considered as invalidating identity of species based on anatomical simila-

The argument may be summarised thus re-examination of Giles' specimens of Strongylus colubriformis shows that this parasite and Trichostrongylus instabilisare anatomically The identity of the two species is identical confirmed by the fact that the only trichostrongyle found in sheep killed in the locality where Giles collected his specimens is the worm which is at present known as Trichostrongylus instabilis This identity is not invalidated by differences in measurements between parasites collected in Europe, Egypt, and India The correct designation of the parasite conceined is therefore Trichostrongylus colubriformis, Giles 1892

Scientific Memoirs by Medical Officers of the Army of

India, Part VII

2 Traité de Zoologie medicale et agricole, 2 Ed

3 Centralbl f Bakteriol u Parasitenk Jena, 24th Aug

4 Zool mag Tokyo V 7
5 Centriabl f Baktoriol u Parasitenk Jena, 22nd Sept

6 Nematodes parasitic in the Al Tract of cattle, sheep and other Ruminants—U S Dept., Agric Bull 127
7 Animal Parasities of Man, 1906
8 U S Hygienic Lab., Bulletin No 10, 1903
9 Records of the Egyptian Govt School of Med., Vol. VII,

## DESCRIPTION OF PLATES

All except Figs 1 to 4 are drawn to the scale attached to the Plates Figs 1 and 3 are magnified 170 times, and are after Giles Fig 2 is copied from Ransom after Looss and is magnified about 200 times, and Fig 4 is after Looss magnified about 240 times

Fig 1—Bursa of "Strongylus colubriformis" seen from the end

Fig 2-Bursa of Trichostrongylus instabilis seen from the side

Fig 3-Spicules of "Strongylvs colubriformis" seen obliquely

Fig 4-Right spicule and accessory piece of Tricho strongylus instabilis seen from the side

Fig. 5 to 7 are from specimens of Trichostrongylus colubition mis collected by myself in Kasauli

Fig 5-Tail of female from the side Fig 6-Bursa of male from the side

Fig 7-Accessory piece and right spicule of male seen from the side

Figs 8 to 14 are drawn from specimens of "Strongy-lus colubiformis" collected and identified by Col Giles,

and drawn by myself
Figs 8 9 and 11—Bursa of male seen from the side somewhat obliquely

Fig 10-Accessory piece and right spicule of male Fig 12-tail of female from the side Fig 13-Head of female from venter Fig 14-Head of female from side

## ARSENIC IN THE TREATMENT OF KALA-AZAR

BY DR F ROUX

(Formerly Surgeon of the French Navy)

Before the labours of Leishmann and of Donovan were made public, Kala-Azar confounded with chionic malaria ailments have been classified to-day as two distinct diseases It is not absolutely improbable, however, that later researches may alter our conclusions and discover between chronic malaria and Kala-Azar, a correlation not admitted at

It must nevertheless be recognised that these two diseases possess a nearly identical symptomatology, especially in the sub-acute of chronic The acute form, usually form of Kala-Azai proving fatal in 35 or 40 days, is rather apt to be mistaken for typhoid fever or typho-malaria This form, moreover, is less prevalent than the chronic form and particularly the sub-acute form

At the outset, it may be stated, in a general way, that Kala-Azai is characterised by fever and gastro-intestinal disorders In the secondary period, that of wastage, the chief symptoms are anæmia, splenomegaly with hypertrophy of the liver Among complications often causing death may be mentioned pneumonia, gangrene of the cheeks, nephritis and hæmorrhage

These symptoms are also found in chronic malaria, and it is not unleasonable to suppose that a treatment which is often successful in chronic malaria may be equally efficacious in The latter disease, however, from its greater gravity, may be expected to show a smaller percentage of successful cures than chronic malaria

Besides, we know that, in lymphadænia, the hypertrophy of the spleen is reducible by only one medicine, viz, arsenic, in the form of injections within the spleen.

In a work the writer published some years ago and which was favourably noticed by Sin Patrick Manson, it was shown that the only iemedy that appeared to have any chance of success in chronic malana was arsenic

But it was found that, to be efficacious, this remedy should be administered in doses of at least one centigramme per day Such a dose, however, was often ill supported by the patient. obliging the physician to suspend the use of arsenic

Subsequently, after numerous experiments. recourse was had, in the treatment of chronic malana, to Ramalline, a French composition containing arsenic in the form of a compound of mineral and organic salts of aisenic composition offered the great advantage over pure arsenic of being supported without ill results by the patient

Each pill contains 1 milligiamme (1.25) of arsenical salts, so that, by giving a patient 8 pills a day, at regular intervals, he is made to absorb about one centigramme of aisenic, that is to say, the efficacious dose

Relying therefore on the strong analogy already existing, from the symptomatic point of view, between Kala-Azai and chionic malaila, it was attempted to treat Kala-Azai with arsenical Tests were accordingly made at the Chandernagore hospital under the direction of Di Chemel assisted by Di Aroul

Although so far only five cases have been treated, the results have been most encouraging

It is interesting to note in this connection that Dr Jemma (of Paleimo), at the Congress of Paris of the 6th October 1912, recognised that arsenical preparations appeared to yield the most gratifying results in the treatment of Kala-Azar

It is known that aisenic has a potent action in certain cases of anæmia, exceeding, in many obtained from ferruginous instances, that The experiments of Cannata have preparations moreover shown that, in Kala-Azar, the percentage of hæmoglobin is always reduced The number of red corpuscles is considerably below This is also true of the cellular the normal efficiency, but no marked deterioration of the red corpuscles is noticeable

It may therefore be expected that arsenic which is so successful in anæmia, will have a favourable effect in Kala-Azar and such indeed are the results obtained at the hospital at Chandernagore

A single instance might be cited A young girl, taken ill in 1911, was admitted to the hospital on the 23rd May 1912, suffering from The liver was hypertrophied, the Kala-Azar. spleen extended as far as the umbilicus Ramalline was administered and, at the end of three weeks, produced a considerable improvement.

The liver and the spleen became normal, and the patient was discharged cured, and sufficiently recovered to resume her work

The cases treated at Chandernagore are doubtless not sufficiently numerous to warrant the assertion that a cure for Kala-Azar has been found in arsenic. But the experiments are certainly encouraging; and it would be interesting, from a scientific point of view, to carry them further

Medical men, in Assam where the malady is more rife than in Bengal, might, with advantage make further experiments with Ramalline. If their results are not as favourable as those obtained at Chandernagore one may hope at least that arsenic, which is so successful a remedy in chronic malaria, will greatly benefit Kala-Azar patients in consequence of its remarkable tonic qualities.

The writer cannot, however, advise the above treatment in the case of very young children, that is, below the age of 9 to 10 years

# SANITARIUM TREATMENT FOR PHTHISIS IN A CIVIL HOSPITAL

By H S MATSON, M.B B.s (Lond), M RCS, LRCP (Eng)
CAPTAIN, I M S

and Gajan singh, sub assistant surgeon,

South Shan States, Burma

TUBERCULOSIS especially pulmonary tuberculosis has in the past been regarded as unsuitable for hospital treatment, partly no doubt owing to a very natural dislike on the part of Civil Surgeons to having their wards infected, and partly to the prolonged period of detention necessary if good results are to be obtained The widespread prevalence of the disease and certain advantages in the way of accommodation have rendered it possible here to ascertain how far, without danger to others, modern Sanatorium treatment is applicable to the ordinary type of patient seeking charitable relief in a Government institution, and in this paper we put forward the experience gained during last 18 months as possibly for benefit to others interested in the subject

It is recognised on all hands that the ideal climate is one that allows of exposure to cool fresh an at all times, without endangering the general health. The height above sea-level is, therefore, of far less consequence than a small mean variation in temperature, or a light nainfall well distributed throughout the year Observations on the results obtained in a Norwegian Sanatorium only 25 feet above sea-level as compared with certain other mountain Sanatoriums bring out this point very clearly. Again comparisons of results can only be very general Success naturally depends on how far the condi-

tions associated with the onset of the disease can be removed. Sanatorium treatment with abundance of fresh an, rest, and good feeding will naturally do very much more for the pauper patient who has led a laborious life half-starved amid insanitary surroundings than for the wealthier class of European patients whose illness cannot be attributed to any gross disregard of The successful treatment of pulmonary tuberculosis is a long and wearisome business, both for the sufferer and those in charge The active co-operation of the patient himself is essential, and to that end the meaning of the treatment is to some extent explained at the outset, and, should the case on evamination prove suitable, he is then required to submit for six months' treatment on the understanding that if he leave the hospital without permission he will not be re-admitted He is also wained as to the danger to others of spitting elsewhere than into the vessel provided, and finally the possibility of hæmoptysis, and of one or more relapses

We were fortunate at the outset in having two cases who rapidly responded to treatment, and in three months were back at work. A third case who refused the conditions, died in the bazaar four months afterwards, and this death at least impressed others with the futility of rignoring warnings. Finally, a charitable committee in sympathy with the subject, and aims of treatment is essential since to it one has to look for a liberal provision of varied diet, essential to success in treatment.

For purposes of treatment Pulmonary tuberculosis may be divided in two main groups, those in the febrile stage and those in the afebrile or ambulatory stage

As long as there is any fever, i.e., the rectal temperature at any time in the 24-hours rises above 99° the patient is strictly (as far as possible in the open air) confined to bed, as the only known means of controlling auto-moculation which is evidently excessive. The normal daily variation in rectal temperature seems to be about 1°, and to say that the temperature must not rise above 99° is tantamount to saying that the waking rectal temperature should not exceed 98°, and this is a point of paramount importance in prognosis in the type of pure tuberculous infection under consideration. The "open" cases where there is a double infection do not necessarily conform to these limits.

The temperature is taken four times during the day, particular attention being paid to the waking temperature. The pulse rate is noted at the same time; it will be found to correspond normally very closely with the temperature, acting as an excellent check on the latter as regards accurate recording. Several details with regard to this daily record require attention, the thermometer should be inserted into the rectum

for 4 inches, the time during which it remains should not be guessed, it should be taken with a watch, and the chart should be kept out of the patient's sight, finally it is well for the medical man to occasionally himself check the recorded results. We do not find it possible to form any opinion as to ultimate prognosis till the patient has been at least a month under observation. Patients dislike the procedure at first, but if due regard is paid to their feelings, they soon get accurately recording the slight daily variations which enable one to estimate progress.

Fever is regarded as the evidence of the continued production of toxin, and of the absence of any real attempt at limitation of the disease locally. It is more accurate to say that fever is evidence of excessive auto-inoculation, of a persistent negative phase, and therefore of progress of the disease. The amount of auto-intoxication varies as the blood-pressure, and there is no doubt that the organism attempts to limit the toxin production by maintaining a low blood-pressure, and by the sensation of fatigue which seems instinctively to call for rest

We drew attention in an earlier paper to the rapid collapsible pulse as typical of early phthisis, and so far is this true that in the absence of arterial disease a persistently slow pulse of good tension will absolutely preclude tubercular infection of an active nature

The stethoscope may reveal evidence of lung damage, but examination of the pulse will determine how far the lesion is active

The amount of fever as a factor in determining prognosis is of less importance than the extent to which it can be controlled by treatment

Fever is only one of many effects of the tuberculous toxin a persistently soft rapid pulse, eg, always over 80 while at rest though there may be no fever is sufficient to contia-indicate exercise of any sort

With the fall of temperature one generally notes however loss of cough and symptoms of malaise, and return of appetite with slowing of pulse rate and change in its character

Patients in this febrile stage are frequently (we except chronic cases of long standing) restless, they suffer from frontal headache, disturbed broken sleep, loss of appetite and obscure pains in the limbs

For such, a diet easily digestible, and arranged as far as possible in accordance with the patient's own wishes, is provided. It will be rarely found that an article of diet which is asked for, disagrees. At night abundance of sodawater should be available. A daily action of the bowels (using bedpan) is most important. Massage is useful where a prolonged stay in bed is anticipated, it will often stave off neuralgic pains in the limbs. The use of alcohol is very difficult

question, generally speaking we find it has to be a matter of individual experiment, the possibility of abuse is obvious, and yet in some cases it does act like a chaim. Champagne and spaikling wines are particularly valuable for European patients improving the appetite, enabling them to eat and sleep in a way that nothing else will do

Alcohol will remove often symptoms of exhaustion in the morning and at night will sometimes ensure unbroken sleep, in all cases it is worth trying. When alcohol fails, opium should be tried, we find paregoric can be taken over long periods in doses of minim xxx, without seriously affecting bowels or appetite in certain patient.

Finally when this treatment rigidly carried out and the temperature fails to fall after a reasonable time, it is always advisable to look about for a cause before deciding that the case First and foremost we have leaint is incurable here to attach paramount importance to the state of the mouth Apart from the comfort to the patient of having his mouth regularly cleaned, it is believed that the presence of organisms in mouth are frequently responsible for complications, but in addition they certainly impede digestion, and it is on his digestion that a phthisical patient has to a large extent to rely It is believed that attention to this point turned the scale in two patients who appeared at first to be doing badly, carious stumps were removed and the regular use of an antiseptic mouthwash insis-Constipation of course will keep up a temperature, another point is change of position Some people do badly if the seclusion is too nigid, a little amusement of a harmless nature with a word or two of encouragement will work wonders

Direct similable even for a short time will raise the body temperature in tuberculous patients, and this is a point worth remembering when selecting the position of bed-ridden patient

In each case personal attention is the very essence of success, relapses are almost inevitable but if the treatment is persisted in are always temporary and their importance should not be exaggerated

#### A FEBRILE OR AMBULANT CASES

Such cases are assumed to have reached the stage of arrest, and are convalescent as the result of the cessation of toxin production. In addition to measures calculated to raise the general resistance

(i) The auto-moculation produced exercise (ii) the injection of tuberculin

In essence the two things are the same, personally we believe that the proper use of tuberculin is in the earlier stages the safer method of conferring immunity

The question of permanent cure of a case of phthisis is most difficult, and perhaps at present

insoluble, and this being so it becomes necessary to create an individual test. All climical experience goes to demonstrate futility of regarding an apparent disappearance of physical signs, or tubercle bacilli in the sputum as evidence of cure, and it is found most satisfactory to regard the patient's reaction to auto-inoculation as the best test of his condition

It is in the point that the apparently healthy but tuberculous patient differs most widely from the non-tuberculous individual. Repeated experiments made by us on healthy men show that ordinarily the rectal temperature after slight exertion does not use above 99°. Severe labour will raise it temporarily to limits which vary with the severity of the labour and the physical condition of the patient.

The normal rectal temperature in women is apt to be slightly higher than men. We have found temperature of 99 2° or 3 in apparently healthy women walking about, and performing the ordinary duties of life.

The time comes when after the temperature of a patient has settled to between normal limits for seven days, and the pulse has gained its normal tone, that he is allowed under supervision to take a short walk on the level over a measured Temperature and pulse rate are estimated before, and immediately after, neither should as the result of exercise rise above 100, both should drop to the normal limits within 1 hour, there should be no sense of fatigue, shortness of breath or giddiness Exercise which conforms to these conditions is beneficial and absolutely harmless The distance which can be walked slowly can be rapidly increased and other forms of exertions can easily be devised men, hoeing in a cultivated plot in the hospital compound is convenient as being easily supervised

There is one further point a tuberculous patient will have fever and symptoms of illness at night long after he has apparently recovered his health by day. Disturbed sleep, slight local sweats on various parts of the body, and periods during which the pulse runs up without apparent cause, are all evidence of persistence of infection, and of good reason for caution.

The injection of tuberculin may be commenced provided the case appears to be suitable, certain cases appear to be unsuitable for tuberculin injection, generally speaking where the amount of re-action to auto-inoculation, i.e., shight exertion appears to be out of all proportion to other features it will be necessary to proceed very cautiously. We use here New (Tuberculin B.E.) which has the advantage of being a real vaccine, if injected hypodermically into the gluteal muscle using alternate side indicate m.g. is regarded as the maximum dose to commence with. The actual dose must depend on the condition of the individual, it is fail better

to en on the safe side. A dose of 100000 mg of dried T B is, therefore, used at the outset, and the effect watched Where the dose has been in our opinion a proper one no febrile reaction follows and patients are unanimous in saying how much better they feel and soon express great faith in the vaccine This sense of well being following a proper dose seems invariable. The production of a reaction following dosage with tuberculin is still a matter on which it is unwise to dogmatise, and on this point we merely give the results of our own experience with patients here

In the case of tuberculosis one is introducing vaccine into an organism already crippled, and perhaps still being crippled by the previous action of toxin, a slight error in dosage may easily light

up the whole mischief again

We therefore avoid the productions of these reactions, the extent of which it is impossible always to foresee, as involving needless lisk till such time as experiment, or wider experience clearly demonstrate their value

We find it wiser to allow at least seven days between each dose. In one patient a general febrile reaction was produced by repeating a minimal dose within three days though the first dose had obviously been beneficial. This negative phase lasted ten days and the patient lost ground.

Once immunity is established, one can proceed rapidly to double the dose, one of Joboo mg. can be followed safely by Toboo mg and then Tobo, the effects being carefully watched

Tuberculin administration by the mouth has been tiled, it is not satisfactory in a civil hospital where it is found troublesome to ensure the necessary conditions essential to proper administration

It need hardly be said that tuberculin is most unsuitable for administration to out-patients. Patients arrive from a distance generally with fever (and consequently a lowered opsonic index) and to inject tuberculin under such conditions is to provoke a prolonged general re-action (negative phase) which will not merely gravely affect the patient but bring discredit on what if properly used is a most valuable method of treatment

We do not think it wise to regard cases as arrested unless they have been under ordinary conditions of life free from symptoms of illness for at least a year

Patients who have made satisfactory progress in the afebrile ambulant stage and can carry out the ordinary duties of life without a febrile reaction on discharge, are warned as to certain points in home-treatment, and are directed to present themselves once a month for examination. We have found this system so far work very satisfactorily. Patients seem to realise that the cure is probably not complete, and that whether it will eventually be so depends entirely on themselves.

# THE SANIFARY REQUIREMENTS IN THE CONSTRUCTION OF A SLAUGHTER-HOUSE (ABATTOIR) IN INDIA

BY C C MURISON, FRCSE, DPH,
MAJOR, IMS,

Superintendent of Matheran

THE question of the requirements in the construction of an abatton in India on sanitary principles is very important, and this is especially the case when it is considered that large sums of money may be wasted in selecting a pattern, a size, material for construction, and other details of an abatton not suitable to the special requirements of the place The literature on this subject at present is very limited, and so this article is written with the hope that it will to a certain extent give an idea as to the sanitary 1equirements which should be considered before beginning the construction of an abatton must not be taken from this article that every sanitary authority should construct an abatton with all the rooms or departments as mentioned in it as everything depends on what is necessary in each place For example, it is quite workable to combine the diessing and cooling 100ms into one, and to do without other rooms such as the refrigerator and the detained meat room in fact, in some small municipalities all that is necessary is to have a slaughtering yard and a combined diessing and cooling 100m and the whole place surrounded by a wall In all cases strict sanitary airangements must be made With a view of not making this article lengthy, well established principles of sanitation and of sanitary engineering are not described, but only mentioned points to be considered when the construction of a slaughter-house is contemplated are -

## I —Whether the Slaughter-holse is for Cattle (including Buffaloes and Camels) Sheep (including Goats) or Pigs

In India owing to caste piejudices, it may be stated definitely that slaughter-houses for cattle, sheep and pigs must be separate and distinct from each other. Still in some places the buildings for each need not be far apart, in fact they can be in the one compound provided they are quite distinct and separate

## II —SYSTEM OF BUILDING

There are three system of buildings to choose from and these are —

- (a) The Block system This is where all the buildings of the slaughter-house are under the one roof
- (b) The separate system —This is where all the principal buildings of the slaughter-house are quite separate from each other

(c) The combined system —This is a combination of the block and separate systems, that is the principal buildings of the abatton stand quite separately from each other but are connected with each other by covered passages

The block system is not suitable for India owing to it not providing for sufficient free space and an around the several rooms which are absolutely necessary. Consequently the choice lies between the separate and the combined systems. This choice depends on the meteorological conditions of the place as regards rain and sun. Further, in all cases it is better to keep certain buildings apart from the others.

## III —Size of the Slaughter-housi

In deciding this point one has to take into account not only the number of animals that are to be slaughtered but also on the size and number of the buildings which are going to be built

The question of the future expansion of the abatton should also be taken into consideration. No definite rule can be laid down for arriving at the number of animals that ought to be killed in each place as the meat-eating population of the different places in India varies a great deal

The only rough way of working out the number of animals that will be required to be killed in each place is from the annual statistics of the animal killed in that place. The amount of floor and cubic space of the several rooms when required to be mentioned will be stated under that room

## IV —CONSTRUCTION OF THE SLAUGHTER-HOUSE

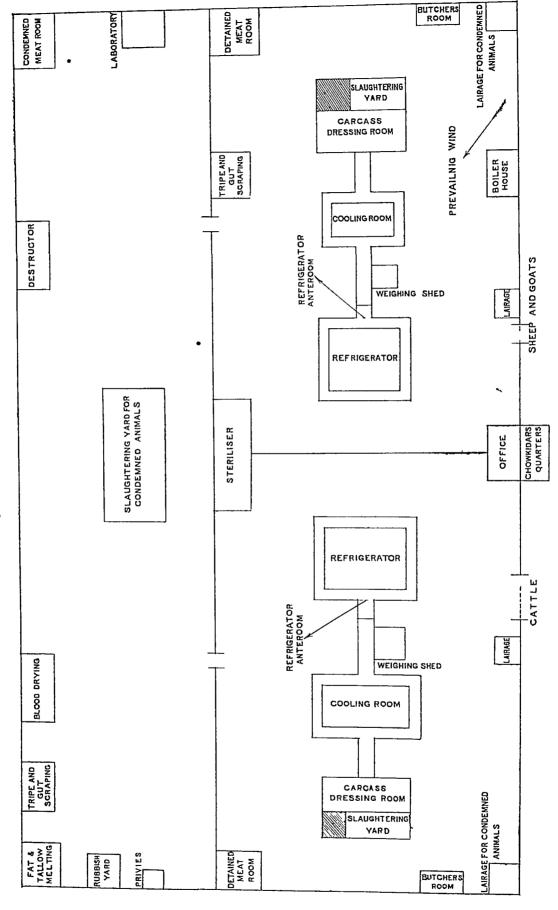
This is very important and the sanitary authority concerned should make a point of building a good substantial and up-to-date abatton in preference to an inferior one. The subsequent repairs and alterations to the latter will in the end come to more than what the initial cost of the former would have been

The following are the general requirements of construction of the whole abatton, and any special requirement or modification of these for a particular room or department will be mentioned under that 100m or department does not matter what kind of material is used The outside for the walls provided it is durable of the walls, in places with heavy rainfall, if of brick should be plastered over with cement and if of stone then pointing with cement is advised Several of the rooms will require to be done The internal surface of the whole abatton including the floor should be covered with a haid smooth, non-absorbent, impervious and durable material so as not only to prevent the absorption of blood, liquid, refuse and other kinds of filth but also to enable the whole of the

# THE SANITARY REQUIREMENTS IN THE CONSTRUCTION OF A SLAUGHTER-HOUSE (ABATTOIR) IN INDIA

BY C C MURISON, FRCSE, DPH, MAJOR, IMS,

Superintendent of Matheran

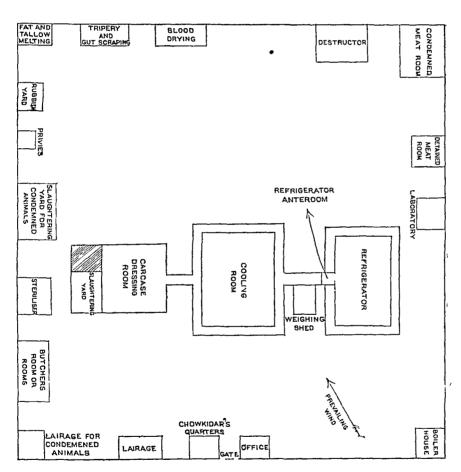


COMBINED STAUGHTER HOUSP FOR CATTLE AND SHEEP

# THE SANITARY REQUIREMENTS IN THE CONSTRUCTION OF A SLAUGHTER-HOUSE (ABATTOIR) IN INDIA

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SINCLE SLAUGHTER HOUSE

interior or at any rate the floor and the wall up to about eight (8) feet to be freely cleaned by a hose daily. In the latter case the upper part of the wall and the ceiling to be cleaned by white limewash periodically, say, once a month

The colour of the interior of all of the buildings should be white, as this colour not only shows off dirt which can then be easily cleaned, but it will also increase the light of the rooms There should be no corners, and all the angles should be sounded off so as to prevent the accumulation of dust walls These conditions can be fulfilled by plastering the inside of the walls with Poitland cement moitai, and over this there must be a fine layer of neat cement and then white oil painting over the whole wall, or, perhaps, only over the lower eight feet and above this white limewash If expense is no consideration, then it is better to fix over the Portland cement mortar very closely fitting tiles of white maible or of white glazed tiles This fixing of tiles could extend from the floor to about eight (8) feet high or preferably up to the 100f

White glazed bricks are often used for the inside of the walls and are strongly recommended

Doors, windows and skylights—These must be provided according to the requirements, but still it must be understood that there must be plenty of ventilation which in India can very easily be carried on by doors, windows skylights and no other continuances The skylights, the windows and some of doors in some of the hot places  $_{
m the}$ wıll require 'sun bonnets" Each door window, in addition to the ordinary shutters. must also have "fly-proof" shutters Both kinds of shutters should be fixed on in such a way that they will automatically close unless prevented by special hooks or by other means To make the skylights "fly-proof" and yet allow the shutters to be opened it will be necessary to fix the gauze from the edges of the sun bonnet to the frame of the skylight All the buildings except the lans and the slaughtening yard should he made 'fly-proof" Great care must be taken to see that every little inlet for flies is made "fly-proof" The sills of the windows and of the skylights should slope inwaids and thus greatly prevent dust from collecting on them, and also in the case of the skylights to allow more light to come into the room

There should be no sills to the doors with a view of not only preventing dust and germs from collecting but also of enabling the whole floor of being thoroughly cleaned

Ceiling—This should be so constructed that the collection of dust will be reduced to a minimum and further it should be painted white with oil colour or himewash.

Wall horsts—These are very necessary in abattom for heavy animals like cattle and camel These horsts are fixed to the walls and by them it is quite easy to raise animals from the ground

Over head rails -These are also very necessary in abattons for heavy animals should be of iron and should be so arranged with switches that they are on the same principle as an ordinary railway line, that is, there is a main iail (transport iail) and it is connected by switches with side rails (hanging rails), and on these rails wheels, suspending hooks, are placed carcass attached to a crossbar is hung on to a hook and can quite easily be taken on the transport rail from one part of the abatton to another The side fails are for hanging carcasses for any length of time such as when it is being dressed or cooling All the crossbars should be numbered and should have an arrangement attached to them so that if necessary a carcass when hung can be locked to the crossbar and the hook, and thus prevent it from being removed from the hook

Further, the carcass can quite easily be transferred from the wall hoist to the hook or vice  $ver s\hat{a}$ 

Floor —It must be remembered that the floor of abatton and especially that of the slaughtering yard is exposed to great wear and tear, and so in addition to fulfilling the requirements of the internal surface of an abatton mentioned above must consist of some hard substance and be well laid

In constructing the floor the following points have to be considered —

(a) Material or materials for construction

The following amongst numerous kinds of material are suggested in order of durability for the construction of the floors of slaughter-houses—

- (1) Slabs of marble
- (2) Slabs of other hard stones such as granite
- (3) Flag stone
- (4) Bricks set on edge in cement with cement plaster over them
- (5) Concrete in cement

In deciding on one of the above, the question of expense in the particular place must be taken into account

(b) Whether the floor should be smooth or rough

The floor of the whole abatton except that of the lars and the slaughtering yard should be smooth. As regards these two exceptions some authorities are of opinion "that the floor should be quite smooth as then only it can be thoroughly cleaned," while others are of opinion "that a certain amount of roughness must be provided to prevent shipperiness, and this roughness will not prevent the floor from being thoroughly cleaned,"

To make the floor rough enough to efficiently prevent slipperiness, means that we are giving way to insanitary principles as then it becomes quite impossible to thoroughly clean the floor Under these circumstances it is recommended that the floors of the lans and of the slaughtering yards should also be smooth The slippermess of the floors of the lans and of the slaughtering yards can be greatly remedied by sprinkling sand or dry earth over it, and this sand or dry earth to be daily removed and re-

## (c) Whether or not there should be a slope to the floor?

There is a great deal of difference of opinion on this point Some of the authorities contend that a slope increases the slipperiness of the floor, while others contend that a very slight slope is necessary to enable the fluid material to drain away and that the slipperiness is not materially It is recommended that a very slight slope to the floor should be given towards the inside diains or to the outlet channel or channels

Ventrlation — (See under doors, windows and skylights)

Heating arrangements—The heating of some of the 100ms (carcass dressing 100m, office, labonatory, butcher's noom) in certain parts of India during certain seasons is absolutely necessary The best way of heating these rooms on sanitary principles and on a large scale is to do it by hot water pipes conducted on the low in preference to the high pressure system If this system is not possible then the 100ms just mentioned except the carcass dressing room can be heated by having ordinary fire places

Artificial cooling arrangements —The majonity of the rooms of the abatton in most parts of India during the summer months require cooling The office and laboratory can be cooled by the ordinary means of punkhas, fans, and tatties, but the question is as to how to cool the carcass The best way of dressing and hanging rooms getting over the difficulty is to slaughter the animals in the afternoon and evenings, and then keep the carcasses in the hanging room till moining when it can be transferred to the market funds are available then the meat after cooling can be transferred to the refrigerator

of the refigerator The cooling requires special machinery, and there are three well recognised methods of producing cold and they are -

(1) By the expansion of an

(2) By the evaporation of a liquid

(3) By the evaporation of a volatile liquid

Water-supply.—A good and plentiful pipe water-supply for an abattoir is an absolute neces-If the place has a good and plentiful pipe water-supply well and good, if not, then arrangements must be made for providing it, as it is quite

impossible to work an abatton on sanitary lines Further if the proposed water-supply without it is not of good quality, then precautions such as filtering must be carried out before supplying it to the slaughter-house It has been shown above that the floor, walls, and perhaps the ceiling of the abatton will require to be cleaned by a hose and consequently a good pressure to the water will be required not only for this purpose, but also for the flushing out of the drains and pipes From whatever source the water is obtained, it will have to be pumped up and stored in galvanised or barff non tanks or preferably in tanks built in chunam and water and plastered over with These tanks should be placed well above the highest height required to be reached by the hose The question of extinguishing a fire by water must also be considered the tanks the water can by gravity be distributed to the whole abattorr, and the pipe or pipes according to the requirements of each room or department should be laid on it will be necessary for hot water-pipes to be laid on for the supply of hot water to certain parts of the slaughter-house The pattern of the boiler for the production of the hot water according to the local requirements will have to be decided on by the Sanitary Engineer

It is not absolutely necessary to have steam for abattoms, but if the local sanitary authorities are of opinion that it is necessary then the question of a boiler and of laying special pipes must be considered

Sewage disposal —This greatly depends on the system of the sewage disposal of the place If the water callinge system is in force, then it is quite easy to dispose of the abattoir sewage by passing it into one of the sewers, and if not then the question arises as to what should be done Nothing very definite can be mentioned here as everything depends on the local conditions there is a plentiful supply of water, then the sewage should be removed through pipes as fai as possible and there disposed of according to one of the regular methods of sewage disposal, and of these methods the biological system (septic tank) The effluent from this method 1s 1 ecommended can be used for irrigation purposes

The biological systyem can be employed quite close (200 to 400 yards) to the slaughter-house In some places the without being a nuisance crude abattoir sewage is used for irrigation purposes, and under good supervision works well and without any sanitary defects such as the breeding of flies, mosquitoes or the production of

smell

In small slaughter-houses and where the watersupply is very limited, the best way of getting rid of the sewage is to catch it in cesspools of in carts and to remove it in carts and then bury it in deep trenches and after a year or so sell it as

manue. The cesspools or carts should be located outside the abatton yard The former should be large enough to receive the whole sewage, and should be well built in chunam and mortar and be cemented over

In these later cases all the drains must be open with oval bottoms and he well made in chunam and mortar and be cemented over and have a good fall

Buildings —In most of the modern slaughterhouses in the United Kingdom the undermentioned necessary and additional buildings are to be seen in an abatton, and there is no reason why in a big public abattoir in India the same should not be provided, and further, an encouragement should be given to the development of the various offensive trades connected with a slaughter-house and thus be a source of income towards the nevenue of the abatton

The necessary buildings are -

Office of one or two 100ms Need no speaccording to requirements ( cial comment Chokidars' quarters.

- Laboratory is very necessary for bacteriological and microscopical examination of suspected tissues and organs, and also of the excreta and blood of live animals The number and size of the rooms for the laboratory will depend on the local requirements It is advisable to build the laboratory near the room for condemned meat, but still in a small slaughter-house there is no objection to build it off the office It should be fitted out with a wash-hand basin and sink connected with hot and cold water pipes
- Butchers' noom or nooms -These are very necessary for the butchers to want in, to change then clothes and also for other purposes of their special wants If this room is not prouded then the butchers are apt to make use of other parts of the slaughter-house and this practice is quite insanitary The size of the room or 100ms will vary according to the possible maximum number of butchers that are to be accommodated at the one time and so it can be worked out on the principle of allowing each butcher a minimum floor and cubic space of 40 square feet and 600 cubic feet respectively These rooms should be provided with lockers in which the butchers can keep their change of clothes

In addition to this room or rooms special 100ms or yards for washing and bathing should be provided, and further hot and cold water-pipes should be laid on and bathing and washing plinths and sinks elected

Steriliser of large pot for boiling clothes including a special place for washing clothes -It is absolutely necessary from a sanitary point of view that butchers should wear special clothes whilst working in the abatton These clothes after each days work should be washed and then sterilised by being put into boiling water or into

a steriliser, otherwise the butchers are apt to wear very filthy clothes while at work, in fact cases have been known where the butchers have not even had then working clothes washed for months and others have worked in the clothes which they wear at home

Lawage —Two sets of lanage (sometimes called Pound) are necessary—one for healthy animals to be slaughtered and the other for animals which are diseased or suspected of being diseased On sanitary grounds the two sets of lanage should not only be kept quite apait from each other but also from the other buildings of If the lanage communicates with the abattor the chief 100ms of the slaughter-house then there 18 a danger of smells passing from the former and affecting the meat

The larrage for healthy animals should consist of a series of pens, and each pen should be placed at the disposal of one butcher so that he may be able to lock in his animals and thus have charge of his own animals

The lanage for diseased animals should consist of only one or two pens, and the animals put into it should be in the charge of the Slaughter-House Superintendent and thus prevent a butcher from changing the suspected animal by a healthy one. The pens should consist of a shed with an open yard in front of it, so that the animals in the rainy and sunny weather will be able to go into the shed and at other times can remain in the open yard

The best way of constructing the lanage is to have a long shed with walls about ten feet high on three sides, and above this wall have non bars from two to three feet high up to the roof. these walls have a sufficient number of windows which should, in addition to having shutters, be barred Divide the shed into a series of compartments side by side by walls  $(2\frac{1}{2})$  to 3 feet high) and above these walls have iron railings (5 feet high) with the upper end of the iailings sharp The combined height of the wall and pointed railings ought to be about  $7\frac{1}{2}$  to 8 feet will appear to be rather high for sheep, but the real object in making it high is to prevent people from stealing sheep by pulling them out over the railings Have a similar wall and railings in front of the yards and here place the gates floor should slope to the two sides where very shallow open drains should be placed, and the latter should gradually slope and drain into an open drain with oval bottom running along the back of the larrage Each pen should have in the open yard and not in the shed a drinking trough made of some material which cannot only be easily washed but also disinfected A trough dug out of some hard stone is as good as any Some authorities recommend enamelled non or metal troughs, but the objection to these is that the water in them gets hot very easily in the

hot weather Cold pipe water should be laid on to each pen so as to be able to fill the trough and also to flush out the drains and hose the floor. The minimum floor space for large and small animals should respectively be 20 and 10 square feet per animal.

7 Slaughtering yard—This is the place where the animals are slaughtered, and to arrange for wet and dry weather it should be so constructed that a part of it has a roof and a part of it is without a roof

The walls of the latter part should be about 7 feet high and of the former at least 12 feet high, and above this have non bars from 2 to 3 feet high up to the roof

Hot and cold water should be laid on

There should be an open drain with an oval bottom all round the yard, and should be from 12 to 24 inches away from the wall according to the size of the animal to be slaughtered

The size of the diam should be about 6 inches deep and 9 inches across the top for small animals, and 9 inches deep and 12 inches across the top for large animals

These drains should have a fall towards one corner of the yard from where they should continue on as a pipe through the wall, then a trap and then an open drain or pipe. The floor of the yard should have a very slight slope from the centre to the drain all round

The animals should be slaughtered over the drains and the blood, if required for trade or garden purposes, should be caught in special vessels otherwise it should be allowed to go into the drain. The vessels for the blood must have proper and closely fitting covers

The animals, if properly slaughtered, will not be required to be kept in this yard for more than a few minutes, and so it is not necessary to fix a definite floor space but a large enough yard which will allow plenty of room must be provided

8 Slaughtering yard for diseased animals— This should be more or less on the same principle as the ordinary slaughtering yard and is necessary in all big abattors but it need not be very large

The carcasses should also be dressed in this yaid

Carcass dressing room —This is the room where the carcasses are to be dressed that is to be skinned and disembowelled Plenty of hot The floor and cold water should be laid on space necessary is 50 square feet for sheep and goats, 70 square feet for cattle and 100 square feet for camels Pigs require special arrange-This piocess of for being scalded scalding is usually carried out in scalding vats by steam and the steam rising from the vats is caught in special funnel shaped ventilators and taken up through the roof The scalding can be done in boiling water but not so efficiently pigs after having been scalded are scraped and

then dressed There should be an open drain with an oval bottom about 6 inches deep and about 6 inches away from the wall all round the room. This drain should have a fall towards one place and from there it should continue on, as a pipe, through the wall and then a trap and then an open drain or pipe.

10 Cooling room—This is the room in which the meat may hang till cool or required by the butcher. If the meat is to be transferred to the refrigerator then it must hang in this room till cool, otherwise a hot carcass will raise the temperature of the refrigerator.

As in the case of the carcass dressing 100m it should have a drain all 10und the room, but the size of it need not be more than 3 inches deep

Refrigerator —This is very necessary for all medium and large sized slaughter-houses as in it the butcher can keep not only meat in reserve for emergencies but also for a day or two and thus prevent tough meat from being This last is a very important point to be considered where good gram-fed meat is sold to wealthy people in the hot weather The refrigerator must be so constructed that the inside of the walls, ceiling and floor should consist of material such as wood which is a very bad At the entrance of the reconductor of heat frigerator there ought to be a small room built on the same principle as the refrigerator and the an of this room should also be cooled By having this small room the air of the refrigerator will not directly communicate with the outside air and so the temperature of it will not be greatly raised when taking meat in and out of it

12 Weighing shed—Between the cooling room and the refrigerator a weighing shed should be provided, and all meat as it leaves for the market must be weighed and a record kept of it for several reasons

13 Fly-proof carts—These are very necessary for taking the meat to the market, and separate carts should be provided for mutton and beef

14 Detarned meat room—This is for the keeping of suspicious meat about which, perhaps, a definite decision is required from the Medical Officer of Health or from the butchers medical expert. The butchers often question the opinion of the Meat Inspector or Slaughter-House Superintendent, and so before allowing the meat to be passed on to the room for condemned meat where it is likely to become affected by diseased meat it is kept in this room. After the inspection, the meat, if diseased is passed on to the condemned meat room, and if not, it is taken to the refrigerator or to the market, and if a refrigerator is not available then to the cooling room.

15 Condemned meat room—This is absolutely essential in all slaughter-houses of any

importance, as in it all the diseased meat and organs should be kept till removed to the destructor

16 Borler-house with borlers —This is necessary for the supply of hot water to the abatton, and if necessary, steam for scalding the vats for sterilising clothes of the butchers and for other purposes according to the local requirements

Incinerator or destructor of some kind is necessary for the destruction of the condemned meat, offal and other kinds of abattoir jubbish

- Privies These are necessary for establishment and should be well away from the chief rooms of the abatton Good up-to-date privies should be constructed
- Rubbish yard—This is necessary for the collection and storing, till removed, of the dung, the contents of the alimentary canal and other rubbish of the abatton This yard should be so constructed as to have an unpervious and non-absorbent floor and walls, and if possible be made fly-proof In small abattons the rubbish can be collected in well-constructed and fly-proof rubbish bins or carts From the rubbish yard or bins the rubbish must be taken away in well-constructed and fly-proof carts, motors, tiollies or iailway tiucks and sold for manuie

If a good memerator or destructor is available, then the rubbish as stated above can be destroyed

- Offensive trades -If offensive trades are to be carried on, then buildings according to the requirements must be provided and some of these are
  - (a) For blood drying (b) For curing of hide

(c) For fat and tallow melting

(d) For preparation of tripe and gut scraping

If offensive trades are not to be carried on then special accommodation inust be provided for the collection of hides, hoofs and offal From here what is required by the butchers is taken away by them, and the rest is removed to the incinerator or destructor or taken away with the abatton rubbish

The accommodation for all of these must be on strict sanitary principles as detailed above

Enclosuse —There should be a wall round the abatton with one gate and thus have ingress and egress well under the control of the super-

intendent

# V —SITE IOR A SI ILGHTER-HOUSE

This is a very important question, and before one can definitely decide upon a site, several points have to be considered such as (a) the prevailing wind, (b) the proximity to the meat market the cattle market the iailway station, the docks and to a good water-supply (c) the sewage disposal, (d) other local conditions 225 the position of the jaid and of the respective buildings of the abatton to each other and to the

town, the approach to the slaughter-house, and also the means of access to the abatton. It is essential on sanitary grounds for the slaughterhouse to be on the outskirts of the town and more or less leeward of it as regards the pievailing In fulfilling this condition the abatton if possible, should be near the meat market, and cattle minket, as otherwise, perhaps the price of meat may become excessive on account of the cartage of the meat from the abatton to the meat market or the taking of the animals from the cattle market, railway station, docks, and from other places where the butcher buys them to the The proximity to a good and plentiful water-supply in places which are not supplied by pipe water is very important The question of the slaughten-house sewage disposal is also of great consideration on sanitary grounds in places where there is not an efficient water carriage system of the town sewage

The position of the yards and of the respective buildings to each other and to the town should be such that the minimum amount of nuisance will be caused not only to the town but also to the These positions can be well seen in abatton diagrams Nos 2 & 3, in which the prevailing wind is shown by an arrow

A slaughter-house should be on raised ground at any rate it should not in any part be below the surface of the adjoining ground This latter is difficult to carry out in a hill station, but still a great deal can be done to overcome this by excavating the earth on the hill side and by constructing a masonry wall against the hill

The approach to the abattor should not as far as possible be on an incline of more than 1 in 4 (as laid down by the Local Government Board of England)

## ACUTE YELLOW ATROPHY OF THE LIVER

BY C H SMITH, MD, FRCS, CAPTAIN, I M S

Owing to the extreme narrity of this disease it is hoped that the description of the following case will be of some interest

The patient, a Gurkha rifleman, aged twentysir, was admitted to the regimental hospital, Kıla Drosh, Chıtıal, on 1st January 1913, with the following history -

Seven years previously he had been in hospital seven days suffering from "fevei" Apart from this he has had no other illness For two weeks before the present illness he has been feeling unwell and he reported sick ten days ago saying that he had fever He was detained in hospital a day, but as nothing abnormal could be discovered he was sent back to the lines feeling somewhat unwell, he was quite able to

do his work up to the day before admission to On the day before admission he became sleepy and stupid and came into hospital on January 1st, in the following condition -

Patient is markedly jaundiced, the whole skin and conjunctive being deeply pigmented are signs of a marked toxemia, distinctly stuperose, the pupils are widely dilated, and the pulse is infrequent being forty-eight to There is slight edema of the feet the minute and over the sacrum There is no enlargement of the spleen or liver to be made out The other organs appear to be normal Constipation is present, but a large enema resulted in the passage of a clay coloured stool No urine has been passed since admission to hospital amination of blood films show an apparent increase in the number of leucocytes poliomorphonucleai and large mononucleai

January 2nd.—The case is suspected to be one of acute yellow atrophy of the liver and a careful examination of the liver by percussion shows the following

In the nipple line the liver dulness instead of being at the sixth rib is only found at the seventh percussing down towards the costal margin the stomach resonance is found, to light percussion, at the eighth rib. There being only about one and a half inches of absolute liver dulness in the nipple line. The patient passed urine in the night which on examination shows the following characters -

> Clear Slight deposit Specific gravity, 1016 Bile present Reaction acid A very slight trace of albumen No sugar

Microscopic examination of the deposit shows the presence of a large quantity of uric acid ciystals, a few epithelial casts, and a few crystals of leucin No tyrosin crystals present The patient is now comatose, and the

codema of the legs and over the sacium has increased

January 3rd — The coma has deepened, the breathing
is now stertorous, and there are coarse rales to be heard all over the lungs There is some bleeding from the mucous membranes of the nose and mouth

Patient died at 1 P M

## POST-MORTEM EYAMINATION

A partial post-mortem only was allowed, so the abdominal viscera alone were examined

All the tissues are deeply bile stained, opening the abdomen considerable clear bile stained fluid is present in the peritoneal cavity The peritoneum is healthy The liver cannot be seen having shrunk away up under the costal margin

Liver — The liver is very much decreased in size, the weight being only 11b 14 ozs It is pale in colour, and the whole right lobe is studded with raised yellow bosses varying in size from The left lobe that of a pea to that of a walnut has two or three similar bosses on its lower surface, but the rest of the left lobe is fairly normal except for its pale colour On section the whole liver is much paler than normal with yellow patches from the size of a pea to that of a walnut scattered through its substance

are not areas of injection to be seen The liver in consistence is fairly firm The gall-bladder 15 empty of bile and seems to be normal

Spleen —The spleen not enlarged weight

Kidneys - Some cloudy swelling, otherwise normal-

> Weight Right 47 075 Left 4등

The rest of the abdominal viscera appear to

In conclusion, it might be remarked that this seems to have been a very typical text-book The most striking feature of the case was its acuteness,—on December 31st the man was doing his work, he died on January 31d The non-enlargement of the spleen and the leucocytosis seem to be exceptional The case was afebrile throughout The patient vomited once on the day of admission but apart from this there was no history or signs of any gastro-intestinal disturbance

#### Hospital Mirror Practice. A of

## CONTROL OF THE EYE IN CATARACT **OPERATIONS**

BY F W SUMNER, BA Mr (Cantab) rR.CS (Ed), Civil Surgeon, Fatehgarh

THE operation of removal of the catalactous lens in its capsule is one that, thanks to the pioneer work of Lieut-Colonel Smith, 148, founded on his vast and immitable experience of more than 25,000 operations, is, in India at any rate, lapidly supplanting the old capsulotomy operation

Granted a successful result, and by this I mean the complete removal of the capsule with the lens, no one can compare the absolutely clear vision resulting from this operation with the more or less hazy vision resulting from the capsulotomy operation for the remaining capsule in the most favourable cases causes some haziness of vision

The proof of the pudding is in the eating, and one has only to note the centres where most cataract operations are performed, and one will find that it is at those centies where the intracapsular extraction is done

No one is quicker to appreciate the best results in eye suigery (as in all suigery) than the native of India, and he will travel fai to get his operation done by the civil surgeon of his choice, his choice being entirely based on the operator's 1 esults

The different types of cataract, the method of extraction requisite for each type, the after-toilet of the eye, the preparation of the eye for operation, the treatment of certain conditions which

# CONTROL OF THE EYE IN CATARACT OPERATIONS

By F W SUMNER, BA, MB (Cantab), FR.CS (Ed),

Civil Surgeon, Fatchgarh





may follow the operation whether extra-capsular or intra-capsular are most admirably and fully described in Colonel Smith's work' and all ophthalmic surgeons—and every civil surgeon in India does cataract operations—must acknowledge the debt of gratitude owed by the ophthalmic world for the perfection of an operation which had fallen into disrepute through the large mortality of eyes it entailed, whereas now—in India at any rate—we find the lens removed in its capsule with as little fear of danger as obtains in modern abdominal surgery

There is, however, too great a tendency for the Smith school of operators to band themselves together in a mutual admiration society and say "Oh yes you imagine you do Smith's operation but you cannot do it properly if you have not seen him do it and done it under his supervision."

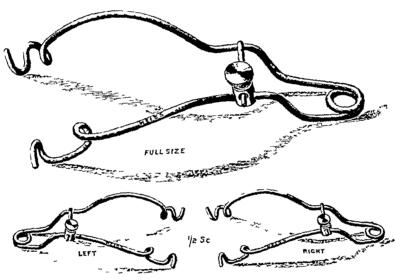
It is to help the poor unfortunates who are not in this happy band, to say nothing of those who are that this article is written

correctly holding the eye may have disastious consequences

Driven by these disadvantages I have evolved a means of control of the eyelids requiring no skilled assistance and making it impossible for the most nervous patient to either move his head or squeeze his eyelids

On one occasion at an outlying dispensary, and in the absence on casual leave of the medical officer in charge, I did the intra-capsular operation on five cases with perfect results with the help only of a compounder of two years' service who had never seen an eye operation

Smith in his book emphasises the necessity of a skilled assistant and states that assistance at some 100 extractions is necessary before the requisite skill is acquired during this training the percentage of indifferent results naturally is much higher and when, as frequently happens, the exigencies of the service do not allow one to have the services of the same man for any considerable



The one and often insuperable difficulty in removing a lens in its capsule according to Smith's method is the necessity there is to have at hand a skilled assistant to take charge of the eyelids in order to prevent the patient making use of his orbicularis oculi muscle, and thus making pressure on the globe and squeezing out vitreous, according to Smith's method the upper lid is held well off the glove by means of a blunt hook held vertically between the finger and thumb, the remaining fingers holding the eyebrow well back, the lower lid is pulled well down by the other thumb

It is not an easy thing to do, if the patient's skin is greasy the assistant's hold is hable to slip the assistant's hands are hable to hamper the operator.

Not only does the assistant take charge of the patient's eyelids, but he also takes charge of the operators reputation for the least flaw in

period, it proves disastious. The method of control of the eyelids now under description is as follows and as shewn in the diagrams.

The handle of the speculum† has a curve to accommodate the index finger, the ball of the thumb lests on the spring, the portion of the upper blade which slips under the eyelid is narrower and projects under the lid much further than in the orthodox speculum.

For the corneal incision it is introduced and used as an ordinary speculum except that the outer edge of the upper eyelid must be held back with a blunt hook to prevent the possibility of the knife touching and being fouled by it.

A different speculum is required for each eye and a smaller speculum for use with very small or children's eyes. They are all of the same pattern. The assistant now holds the speculum between the index finger and thumb taking a firm grasp of it the other fingers he against the side of the face.

<sup>†</sup> Sumner's Cataract speculum made by Messrs Weiss,

pressure of the thumb on the spring end of the speculum acting through the index finger as fulcrum tilts up the eyelids to whatever intent is necessary. The assistant's other hand is spread out over the patient's head and, the eyebrow having been well drawn back, his thumb presses against the upper edge of the orbit.

By flexing or extending the wrist the upper blade may be made to slide under whatever portion of the upper lid most exposure is necessary according to the direction the patient rolls his eye

By pronating or supinating the foreaim the correct amount of 'lift' of the eyelids off the eyeball can be obtained the correct amount of the upper lid is enough room to clearly see the forms where the patient may not roll his cornea out of sight, the lower lid is to be held just off the eyeball, with a bad squeezer the lids should be held well off the eye

The assistant stands at the side resting his elbows on the pillow on which the patient's head lies, there is no strain in the position of his body, arms or hands. The operator stands at the top of the table bending over the patient's eye, the patient's head should lie on a very flat pillow and the top of his head be flush with the top end of the table

When the speculum is introduced the best amount of separation of the blades (and of course of the lids) is found by raising the lids off the eye and then sciewing down the pin to fix them, this amount of separation is generally less than the possible amount of separation of the blades when resting on the eye the eyelids not being raised

# EXTRACTION OF THE LENS IN ITS CAPSULE

By F F STROTHER SMITH, CAPT, IMS, Allahabad

Captain Neshield claims many advantages for the modification of the Jullundar operation which he introduces. These seem to me to be of more than doubtful advantage. This is my excuse for reviewing them. In the first place, I am sure that all of us who have experience of intra-capsular extraction will compliment him on his results—4 cases of slight escape of vitreous in 270 cases and his last two hundred cases without a single case of prolapse of his in which he did a basal midectomy and in which he made a conjunctival flap

A basal midectomy is what we know as a button-hole!! We assume that these results are on cases non-selected but taken rough and smooth as they came. These results are absolute perfection—results that many of us are not ambitious enough to expect to have

As regards the issues —Referring to the Juliundar operation he uses the stereotyped phrase

(so frequently used against it by capsulotomists) which has no basis on fact "so dangerous an amount of pressure was found to be essential." I have now done between 2 and 3 thousand cataracts by this method, and I have never once seen anything deleterious from the pressure used, and I have seen about two thousand roughly done by others at Jullundar and Amritsar and the same applies. It is surely more consistent to deal with facts than with theories based on the absence of skill and knowledge.

Captain Nesfield discusses why the semi-soft mature lens is not favourable for expression because it is readily indented and other explanations, why justify his dislocator? As a matter of fact, the type of lens just mentioned is the simplest of all varieties to dislocate by external pressure to those who know how to do it, besides it is the most dangerous of all to use his dislocator on as its capsule is so very delicate that any rough handling will burst it He lays stress on his procedure that by it the entire lens can be extracted without indectomy and with a conjunctival flag as if by the Jullundai method this were impossible My experience is that it is as easy to do it without an nedectomy as with one and with one incision Colonel Smith has always laid down this and that it is quite easy to do it through an Captain Nesfield deals much in opium pupil possibilities and probabilities." In a matter in which there are now unlimited facts which are certainties, and these latter would, I think, be He says, "finally it more interesting to us all is always possible that strong external pressure and the consequent muitation of the eyeball may set up mitis, for mitic pigment is frequently detached and as the pressure is useless in three out of every four cases I have now altogether given up trying to dislocate the lens by the Smith method!" The certainty of mitis not following the Smith method is known to every one To dislocate the familiar with that operation lens by the Smith method is quite simple personally have had no difficulty in learning how The fact that Captain Nesfield can only to do it dislocate 25 per cent. of the cases by external manipulation indicates that he does not know how The observation that prolapse of mis did not follow accidental button-holing of the mis in the simple operation as often as when the mis was left intact was made by a Boston Sur-It is now known as Hessis' operation and geon 18, I believe being fairly generally adopted over It is on its trial in some of the large Colonel Smith, I understand, is clinics in India making a button-hole with a stab wound of a Critchett's knife after the lens is extracted and the mis replaced

Captain Nesfield makes his button-hole before he extracts the lens, he does not mention how often the bridge of his gets astride the outcoming lens and causes in these cases almost insuperable difficulty

We have always to remember that the patient we are operating on is sensitive when the his is interfered with and apart from this is generally far from being obliging

Captain Nesfield does not use an assistant to steady the eye when making the button-hole Those of us who have seen a patient free to move his eyeball thus when the iris is caught give a quick violent roll and occasionally his head a roll along with it and thus dislocate a large section of the iris, prefer the use of an assistant

Captain Nesfield says, "secondary cataracts from bursting of the capsule I have only had to needle a few cases" As concerns his dislocator and the use of it, it would be interesting to know how many capsules he lacerated with it attempting to dislocate the lens. It is one of many dislocators which came into existence especially in America and Germany with much noise, but which have died and are dying very peacefully

I saw the instrument of Elschnig of Prague used many times on the Continent and it never once succeeded in dislocating the lens

The Jullundan method implies the introduction of the minimum number of instruments into the eye, which is an advantage Captain Nesfield's dislocator implies the passing of an instrument between the iris and the lens, practically without touching either, as if the iris is touched the patient is very liable to wince and thus complicate the proceeding If the lens is touched with the slightest weight, in many cases the capsule will be lacerated The wincing of the patient is also very liable to cause the laceration of the capsule When the instrument has been got into position, to sweep round the suspensory ligament Have we any guide to indicate where that position is? We are working m the dark It may be on the lens; it may be on the suspensory ligament, it may be up against the ciliary region, in which case the patient will certainly wince and complicate Captain Nesfield professes to lacerate matters the suspensory ligament without lacerating the hyaloid on which it iests and to which it is more or less attached How does he do it? He calls all this simple. I call it supremely complicated and difficult, much more so than dislocating the lens by external manipulation.

Captain Nesfield says his sloping valvular incision prevents a prolapse of the iris should the patient sneeze, etc

I think most men will agree with me that nothing will prevent a prolapse when a strain is put on the eye. He says that a conjunctival flap and a peripheral incision makes a small prolapse of the base of the iris quite inoffensive. My observation is that a prolapse of the base is often of grave ulterior significance. A prolapse

of the pupillary margin of the iris is of very much less ulterior significance. He says that this peripheral incision and conjunctival flap are absolutely necessary, when no iridectomy is done

The fact is that other men do not find that it is absolutely necessary The conjunctival flap is a source of bleeding obscuring the field and thus delaying proceedings If the capsule bursts, as may happen, it is almost an insuperable difficulty in the way of getting hold of the burst It is in the way of adjusting or replacing the iris and it has to be very carefully adjusted itself, otherwise it may be left folded between the edges of the wound A mere prolapse of iris does not become septic and thus does not require to be covered up with a conjunctival flap. If there is a piolapse of iris we want to get fan at it to cut it off and not to leave it bound beneath conjunctiva—a conjunctival flap is thus a great additional source of trouble with no compensating advantages His additional reasons for a sclero-corneal incision are each one invalid Take them as he laises them

The radial incision does not tear the capsule, so his theory is not correct. As regards the increased liability to prolapse of iris in a radial incision we want facts to prove this. Many experienced men hold the reverse after trying both. He says no astigmatism follows the peripheral incision.

Astigmatism follows any incision, many men of large experience find that least astigmatism follows a radial incision The reasons for this are well demonstrated by Captain McKechnie at the Bombay Medical Congress in a paper worth rereading and re-studying He says the iris usually requires no replacement My observation on the contrary has been that no part of the whole operation should be done with more care and delicacy than the replacement of the iris whether an iridectomy has been done or has not been done It should be carefully detached from the scleral flap, to which it has a habit of sticking. If left sticking to it the pupil may look central at the time of operation, but will be found later on to be permanently attached to the scleral flap

Ins theories re a button-hole are not sufficient to cover the ground he claims He uses Henderson's theory that the cut iris does not ever cicatrise This fact requires very much microscopic proof before surgeons will admit that the tissue of the iris is the one grand exception, to all other tissues of the body in not cicatrising when wounded The theory follows that the lymphatics of the cut iris remain open and drain away the aqueous humour and thus prevent the increase of tension associated with glaucoma This is the most recent theory on glaucoma The glaucoma theories are mostly suffering from manition. He thus claims that a button-hole is a safeguard against

post-operative glaucoma As a matter of fact an irridectomy has not been found to be a safeguard against post-operative glaucoma though it opens up more lymphatics than a button-hole.

As to after-treatment The daily dressing and the use of drops that Captain Nesfield indicates seems to me far too much interference with a surgical wound and is the best method of courting It is necessary in the prolapse of the 1ris capsulotomy operation in which iritis is frequent. but it is not necessary in the intra-capsular in which iritis is so rare If the iris prolapses it is better left alone for ten or twelve days till the wound has united If sepsis is taking place nothing will stop it The principle of surgical rest applies to a catalact wound as well as to any other wound

He claims as an advantage that his method is invaluable when the lower portion of the iris is adherent to the capsule because the adhesions are readily separated by the wire

As a matter of fact, these adhesions are never strong and extensive adhesions very readily give way to external manipulation alone

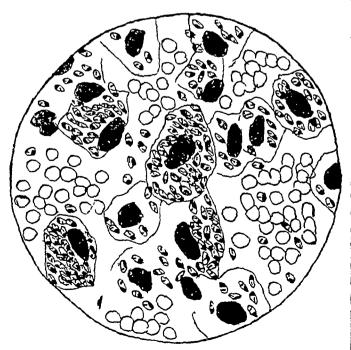
Glaucomatic cataracts are easily removed by any method. What is required is judgment to know the class of glaucomatic cataract which is likely to be followed by expulsive hamorihage.

## A CASE OF BAGDAD SORES, SHEWING AN APPARENTLY LONG INCUBATION PERIOD.

BY R S KEELAN,

Military Assistant Surgeon

THE following case may be of interest, on account of the extreme length of the incubation period, and of the



narity of the affection in these parts. Nazii Mirza Mahommedan male, Shiah, age about 55 years, resident of Lucknow city. He has been all his life time in

Lucknow, going once only on a pilgimage to Bagdad about a year and a half ago

History.—The patient stated that he always enjoyed perfect health until about three months ago, when he noticed a few itching papules, "like mosquitoe bites" on his hand and legs. After a few days these began getting larger, and he noticed signs of ulceration in them, with the formations of layers of scabs. He was in the habit of removing the scabs and applying various local remedies, but with no appreciable benefit. He eventually came to the Balrampore Hospital out door department on the 3rd November 1912.

Condition when seen—There were three large sores, one on the dorsal surface of the left hand and one on the front of each thigh, each about an inch in diameter and covered with several layers of scabs. On removal of the scabs a shallow ulcer was disclosed, congested at the periphery, with an irregular surface and jagged edges, and discharging a thin sanious fluid. There was no pain, but troublesome itching complained of in the ulcers. The sore on the hand was scraped and a smear taken from the scrapings and stained with Giemsa shewed numerous L. D. bodies both in the white blood cells and in the surrounding plasma. There was a marked leucopænia

Treatment—The ulcer on the hand was well scraped, and touched with pure carbolic acid, and dressed daily with boric ointment. Although the patient has attended regularly for about two months, the ulcer shews very little signs of healing up. The ulcers on the thighs have not been touched.

I report this case through the kind permission of Major Birdwood, IMS, Civil Surgeon, Lucknow

## A CASE OF OVARIAN FETATION

BY F C FRASER,

CAPTAIN, IMB,

Govt Maternity Hospital, Madras

THE following case is of great interest both on account of the difficulty of its diagnosis, on the length of time to which the ectopic gestation went without iupturing, and lastly, its rarity (Many obstetricians deny that ovarian feetation ever occurs, but why it should not do so I am at a loss to say)

The woman was admitted with an abdominal tumour which she heiself had noticed for about twelve months. She believed herself to be pregnant, but it was difficult to see upon what grounds she based this as she stated that her periods had been quite regular up to date. She had noticed no quickening, nothing in fact save the steadily growing tumour. She was a multipara and a little milk could be squeezed from the breasts, a point of no significance in a multipara.

When admitted she was screaming with pain, but her general condition was good, the abdomen being fairly lax and the pulse full and slow

On palpation, a large, centrally placed tumous was made out, moulded below into the pelvis and rising out of it as far as two inches above the umbilicus, the latter, however, was much displaced upwards and as may be seen by a reference to the photo, was considerably nearer the ensiform

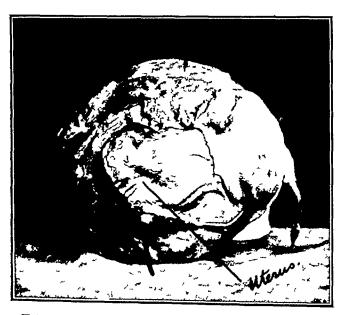
# A CASE OF OVARIAN FŒTATION.

By CAPTAIN F C FRASER, IMS,

Govt. Mater mty Hospital, Madras



Portrait of the abdomen of a woman who was thought to have an abdominal tumour simulating pregnancy—cystic fibroid or ovarian cyst were possible diagnoses. Note position of umbilicus which points to ovarian cyst. On opening the abdomen it was found (only after freeing it from adhesions) that the tumoui was a six and half months fœtus in an extrauterine sac. Sac was quite central and uterus was stuck on its anterior surface. Fœtus was dead



Ectopic sac, anterior view A probe has been passed into the uterus which is seen fixed to the front of the sac



than the pubes The uterus could be felt

perched upon the front of the mass

The tumour was famly smooth, cystic in parts but hard in others, especially on the right, no fætal heart could be heard The shape of the abdomen, except for the situation of the umbilicus, resembled a seven months pregnancy, and I took a photo of it as one of "tumour simulating pregnancy" I remark on this as the subsequent operation revealed the fact that it was not a tumour but an extra-uterine gestation Abdominal secsimulating normal pregnancy tion was performed the following day, and upon opening the abdomen, a cystic tumour was disclosed, densely adherent to the omentum and After much ligaturing off, tumour was freed except below At this stage of the operation, the cystic mass was accidentally punctured and a dark grumous fluid began to Upon widening the puncture, the knife came down on bone and revealed to our great surprise that we were dealing with a feetus which on removal was found to be quite six and a half to seven months old It had a dense clothing of lanugo which was easily removed as the fœtus was partially macerated Dense patches of the lanugo may, in the photo, be seen on the right arm and leg

The uterus was so much part and parcel of the sac that hysterectomy was performed The right tube and ovary were normal, the left tube enormously lengthened ran across the sac, its lumen from uterine to fimbriated extremity was patent and normal so that it was clear the gestation had not originated in it The cavity of the uterus was but little enlarged, the left ovary was quite absent and was evidently spread over the walls of Pieces of this have been sent for section to see if ovarian tissue can be detected, but I think there can be no doubt, but that this is a genuine case of ovarian feetation. The woman made an uneventful recovery

# AN UNUSUAL CASE OF ENTERIC FEVER.

BY E C TAYLOR, MB,

Civil Surgeon, Parachinar, N W F P

R G was admitted to Hospital at Minanshah on August 26th, 1910, on the tenth day of his illness. He had an acute attack with all the classical signs of enteric fever, hyperpyrevia, spots, hiemorn hages, meteorism, bronchitis and the typhoid state. This continued till the third week in September and was followed by a definite recrudescence ending about the middle of October but without acute symptoms.

A small swelling containing a little fluid appeared on the surface of the tibia during this It was quiescent and was left 1 eci udescence Then succeeded two and a half months of megular fever without definite symptoms duing which he put on flesh and was merely an interesting invalid. Late in December an acute relapse commenced with a typical ladder 11se, spots and severe hæmorrhages followed but fortunately, this time, no meteorism. temperature came down to normal at the end of January but before it had been down for fourteen days again commenced to rise in the evening; there then appeared ædema of both legs confined to the tibial area and as this subsided definite These were areas of periostitis were recognised incised under chloroform but no pus was obtained-subsequently, however, pus appeared in other places on the tibiæ from time to time and continued to do so until early in March when the patient sailed for England Widal's reaction early in the first attack was positive 1160 to B. Typhosus, negative to Paratyphoids and again in the last attack in January was positive 1'40 partial 1 80 to B Typhosus and negative to the A slide of the pus from a perios-Paratyphoids teal abscess in January shewed no cocci or bacilli and later, pus plated, grew none. The original periosteal abscess which appeared in September was explored without success with a large needle on December 23rd. The temperature fell at once, but on the sixth day afterwards the last attack commenced On the eight day on opening the abscess about 20 minims of pus escaped cannot help thinking that the original periosteal abscess contained typhoid bacilli which had increased in virulence and that by pricking this abscess with the needle point I allowed them to escape into the circulation and so started a fresh No other explanation seems to explain its origin satisfactorily Another complication was the presence of a tapeworm, an old friend of nine years standing which even in health had resisted all efforts at displacing him. No segments were seen till November, from then till the middle of the last attack segments were passed a large mass followed by a large hæmorrhage appeared on January 8th, the segments in this were very short and must have been very near the head, yet by February 17th mature segments were again being

Altogether it was a strange case and presented many difficulties. The fact that we were 120 miles from a railway, and that there was no chain of bungalows on the road negatived any idea of moving for change of climate. My attempts at prognosis invariably met with repulses and after a time I gave up trying. For the last fortnight's history. I am indebted to Captain Chopping, RANC, to whose care the patient had been transferred.

## A CASE OF HAT-PIN IN THE DUODENUM

BY K L BATAVYAL, LM S., House Surgeon, Medical College, Calcutta

On the 22nd of November, the patient, a Hindu boy, aged five years, swallowed a hat-pin about 31 long with a porcelain head, while playing with three other boys, of whom he was the youngest. The boys held a meeting and proposed to do something by which they could get iid of then stern parents The strange idea of committing suicide struck them, and they thought of putting an end to their lives each in his own way. One thought of drowning himself, another of taking opium, the third of strangulating himself, while our hero who had the pin in his hand thought of swallowing it, and putting an end to his life which was a builden to him. He went so far as to put the pin into his mouth, and tried to swallow it The pin stuck at the back of his throat when suddenly finding life had become too dear the boy ran to his sister, a girl of eight, to assist him in removing the pin from his Then effort to withdraw the pin caused it to slip further down the throat instead parents of the child did not believe the story and taking the matter lightly paid no heed to it The boy was then quite well for 5 or 6 days, after which he complained of pain in his epigastrium, which gradually became worse and caused the child to take to bed He would not allow the part to be touched nor the dhotr to be tied round his waist On the 8th of December (after 16 days) the patient was brought to the Medical College Hospital and admitted under the care of Major C Stevens, IMS 'X' lay examination showed the pin lying obliquely in the right hypochondriac, epigastric, and umbilical regions with the head down-

On the 10th of December, Major Stevens operated on him under chloroform The abdomen was opened by an incision about  $3\frac{1}{2}$  long,  $2\frac{1}{2}$  being above the umbilious and the rest below it was found that the pin had made its way downwards by the blunt end through the œsophagus, stomach and pylorus and was caught at the bend of the duodenum As the 'X' ray examination showed the head was lying downwards, a small linear opening was made into the duodenum anteriorly and the pin was extracted head first The opening in the duodenum was stitched by silk sutures and the abdominal pariet es closed as usual The child was allowed no food for the first 24 hours next 24 hours rectal alimentation was given For the subsequent five days the child was on liquid diet only, after which he was given his The parietal stitches were reusual meals moved on the 12th day after the operation, and the child was finally discharged on the 4th January 1912, perfectly cured

## A ROUGH AND READY FIELD STERILIZER

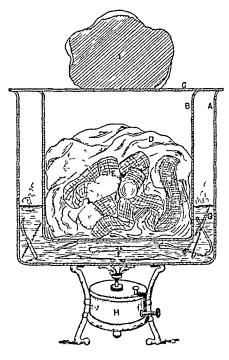
BY R. S. KENNEDY.

CAPT, IM8,

Senior Medl Officer, Debong Survey Party, Abor.

I HAVE recently used the impromptu field sterilizer described below, with excellent results.

One places the instruments required in the bottom of the largest of a set of ordinary aluminium cooking degchis, and covers them with water containing a little soda The sponges and dressings, loosely enclosed in a piece of plain lint or bandage cloth, to prevent any active chemical antiseptics they may contain, eg, biniodide of mercury, from attacking the aluminium, are pushed into the smallest degchi



A=the big outer "degchi"
B=the smaller inner "degchi"
C=the "degchi" cover D=plain lint or bandage cloth H=the lamp or file I=the stone on the "degchi" lid to raise pressure of steam.

E=diessing and sponges F=instruments G=boiling water

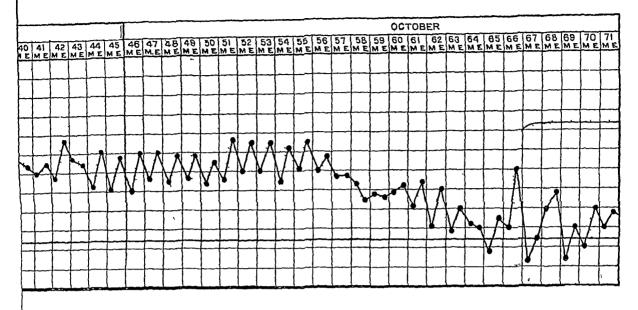
of the same set, which is then floated on the water in the bottom of the large degchi closes the large degchi with its own lid, and on top of the lid one places a large stone to raise the pressure and temperature of the steam in the degchi when the water boils degchi is now heated over a stove, lamp or fire, and, when the water has been boiling for a quarter of an hour or twenty minutes, the instruments and dressings are ready for use, and the dressings are dry or very nearly so

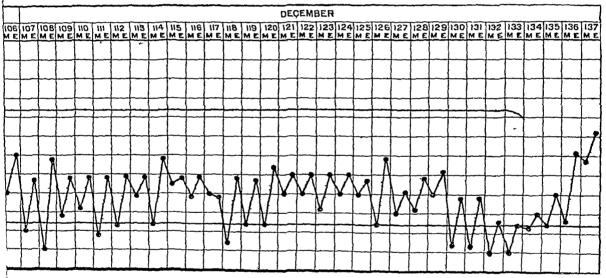
I append a diagram to illustrate the appaiatus, which, at any rate, has the merits of simplicity and ready availability.

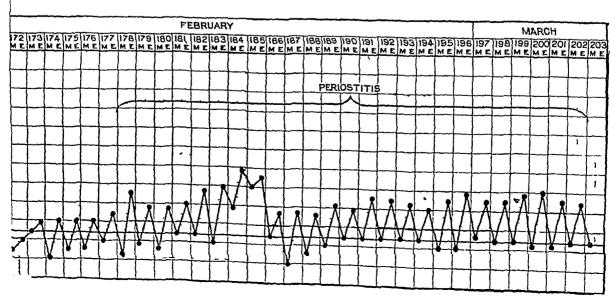
# NTERIC FEVER.

PTAIN, 1M8,

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months; 2 years,  $13\frac{1}{2}$  months, 19 months, 2 years and 9 months, 1 year and 7 months, 2 years, 2 years, 18 months; and 3 months (privilege) It is obvious that if men take such long period of leave and if the 20 per cent is insisted on, other men must needs wait for a vacancy on The above rule limiting the the leave roster grant of first study (combined) leave to one year is we think good, and will help to remedy the The medical officer can take above gnevance a year (or even less leave), he can put in 3 or 6 months study, and the rest should be a real holiday, for after all leave was instituted not for study, but for recreation, and for the recovery of health, and this aspect of furlough should never be lost sight of

# Current Topics.

## LADY GROVER'S HOSPITAL FUND,

This Fund was instituted in 1911 under the pationage of H E the Viceroy and is intended to assist officers by securing for their wives, unmairied daughters, and if dependent on them for their mothers and unmarried sisters, the benefit of accommodation in a good nursing home in London at low rates

Patients are charged £2-10-0 weekly, this does not include doctor's fees.

A subscriber desirous of securing the benefits of the fund should address the Honorary Secretary of the London Committee, Mrs. R. J. Strachey, 21, Neville Street, Unslow Gardens, London, S. W.

The annual subscription is Rs 10 or 13s 4d, which should be paid to the Alliance Bank of Simla, or to Messis. Gundlay & Co, 54, Parliament Street, London

Those eligible to join as subscribers are -

- (a) Officers of the British Service serving in India
- (b) Officers on the active list of the Indian Aimy

(c) Officers of the Indian Medical Service.

(d) Officers of the Indian Army Departments Copies of the prospectus, bankers' forms, and further information can be obtained from the Honorary Secretary, Lieutenaut-Colonel Bruce Seton, y h s, i m s, Milsington, Simla.

## THE ETIOLOGY OF ENDEMIC GOITRE \*

For the second time within the past few years an I. M. S. officer has been chosen to deliver

<sup>\*</sup>The Milroy Lectures delivered at the Royal College Physicians, Junuary 1913, by Major R McCarrison, M D M R C P, LM S John Bale & Sons and Danielsson

# Indian Medical Gazette.

# THE LEAVE DIFFICULTY

"THE last sentence of paragraph 6 of the regulations regarding the grant of study leave to officers of the Indian Medical Service as published in Army Department Notification No 867, dated September 6th, 1912, is reconstructed as follows

The total period of absence from duty in India in the case of officers under the leave rules of 1886 for the Indian Army will be strictly limited to two years, and in the first instance the total period of leave granted (study leave combined with any other sort of leave) will not exceed one year"

The importance of this alteration lies in the words we have italicised above (see I M G, November 1912, p 457, for the whole rules for study leave) There can be no doubt that this will have an important effect on the leave griev-As we have more than once pointed out, leave is becoming more and more difficult to get, it is useless for Government to improve the leave rules and amend the Civil Service Regulations as is now being done, if the leave cannot be granted The leave rules in theory are liberal, even generous, but the heart burnings and disappointments which annually recur as every hot weather approaches, show that though with one hand leave is offered yet with the other hand it must be re-We are strongly of opinion that the 20 per cent. reserve is not sufficient to allow men in turn to take the leave which is certainly needed for the benefit of health, and this difficulty of getting the leave "earned" and to which men are "entitled" has been in recent years accentuated by the fact when men do get then chance they very frequently take very long leave and in consequence the turn for leave does not come round as quickly as is desirable, and so men in every way deserving or even needing leave are met with a non-possimus, because the 20 per cent reserve is exceeded

We take up at random one of the quarterly civil lists for January 1913, and we find the following leaves of I. M. S. officers noted, we give the total periods only, 18 months, 2 years, 15

months, 2 years, 13½ months, 19 months, 2 years and 9 months, 1 year and 7 months; 2 years, 2 years, 18 months, and 3 months (privilege) leave. It is obvious that if men take such long period of leave and if the 20 per cent is insisted on, other men must needs wait for a vacancy on The above rule limiting the the leave 10ster grant of first study (combined) leave to one year is we think good, and will help to remedy the The medical officer can take above gnevance a year (or even less leave), he can put in 3 or 6 months study, and the rest should be a real holiday, for after all leave was instituted not for study, but for recreation, and for the recovery of health, and this aspect of furlough should never be lost sight of

# Current Topics.

### LADY GROVER'S HOSPITAL FUND,

This Fund was instituted in 1911 under the pationage of H E the Viceloy and is intended to assist officels by securing for their wives, unmaired daughters, and if dependent on them for their mothers and unmarried sisters, the benefit of accommodation in a good nursing home in London at low rates

Patients are charged £2-10-0 weekly, this does not include doctor's fees

A subscriber desirous of securing the benefits of the fund should address the Honorary Secretary of the London Committee, Mrs. R. J. Strachey, 21, Neville Street, Onslow Gardens, London, S.W.

The annual subscription is Rs 10 or 13s 4d, which should be paid to the Alliance Bank of Simla, or to Messis. Gundlay & Co, 54, Parliament Street, London

Those eligible to join as subscribers are —

- (a) Officers of the British Service serving in India
- (b) Officers on the active list of the Indian Aimy.

(c) Officers of the Indian Medical Service

(d) Officers of the Indian Army Departments Copies of the prospectus, bankers' forms, and further information can be obtained from the Honorary Secretary, Lieutenaut-Colonel Bruce Seton, VHS, IMS, Milsington, Simla.

# THE ETIOLOGY OF ENDEMIC GOITRE \*

For the second time within the past few years an I. M. S. officer has been chosen to deliver

<sup>\*</sup>The Milroy Lectures delivered at the Royal College of Physicians, January 1913, by Major R McCarrison, M D, M R, C P, I U S John Bale & Sons and Danielsson

the Milioy Lectures before the Royal College of Physicians, London Lieut-Colonel Leonard Rogers, in his Milroy lecture, dealt with Kalazzar and its problems, and now Major McCarrison lectures on endemic goitie, a subject of vast interest in India, as well as in Europe, and other parts of the world

When we remember that most of his work on gottre was done by Major McCarrison when stationed at the remote frontier station of Gright, for removed from the laboratories and clinical facilities of our presidency towns, our admiration for the work must be increased, and here again we find an I M S officer nobly carrying on the traditions of a service which has always been distinguished for its politically useful and able work among the frontier tribes of India

While at home on leave Major McCairison worked with Professor Kocher and Kolle, the well known Swiss scientists, and with Dr. Beiry and other British workers on this ever-interesting subject

We have on former occasions referred to the work of Major McCarrison as read before the Royal Society and published in the Annals of Tropical Medicine, as these lectures have been published in the Lancet and other medical journals, it is hardly necessary to recapitulate the results arrived at

McCailison, as is well known, seeks to prove that goitre is due to a contagium vivum which enters the human intestine with the food, and this contagium then invades the thyloid gland and exerts its haimful influence on the gland itself, or it may remain in the intestine and there produce poisonous substances which on absorption initiate the thyloid changes. So far, however, the work of Glasset in 1898 has not been confirmed and no hæmatozoon such as he described has been found

Many reasons led him to suspect the intestinal tract as the harbour of the virus, and since 1905 he has used with good effect intestinal antiseptics in the treatment of goitie. Of 100 cases the results were followed up in 82, and of these 62 were "cured or markedly benefited."

The toxic agent reaches this situation by water or by food, we refer the reader to Lecture IV for an account of this work

We commend these lectures to our readers. The publishers have produced a handsome volume, clearly printed and well illustrated, a valuable bibliography is also appended.

#### MOSQUITOES IN DACCA

ONE of the most interesting papers in the supplement to the sanitary report on the late province of Eastern Bengal is that by Captain T C McCombie Young IMS, on some larvicidal experiments in Bengal's second capital Dacca.

The report is interesting and instructive and shows how little value can be attached to isolated and partial attempts at malaria reduction

The following paragraphs in a humorous way show the great need of the anti-mosquito work —

"Mosquito infestation —The number of mosquitoes, which during the cold weather makes life a burden to Dacca residents and cause the place to be throughout the province a cursing and a bye word among those who are sensitive to their attacks, is a matter for surprise to those who are accustomed elsewhere to a period of respite from this plague during the cold weather

Local and climatic conditions in Dacca, however, produce an unusual prevalence during the cold weather months

The old native city of Dacca, with a surface dramage system constructed entirely at haphazard, with here a length of pucca drain and there a kutcha drain, some times winding in a tortuous course through culverts and marshes, past back premises, of houses and in accessible and uncleansable privies, being fed by abundant spillings from a pipe water supply, provides an extensive area of breeding grounds filled with the pabulum in which mosquitoes of the Culex Fatigans species in the dry cool weather of the winter months grow and multiply if undisturbed by any flushing agencies

In February 1911, the conditions I have described were well established in my own house (No 30) in Ramna I had at that time no precise means of testing the degree of the pest, but it may give some indication of it to note that on several occasions on sitting down to write letters after sundown during February I found it necessary to start a Jost fan to blow away the crowds of mosquitoes who would otherwise have obscured my field of vision, so numerous were the buzzing hordes. At dinner parties the arms and shoulders of ladies in evening dress would by the end of an evening show distressing and abundant evidence of the numbers of biting mosquitoes who had visited them, and the common foot wear for ladies in the bosom of their families would be their own riding boots, or "Welling tons" borrowed from their male relatives"

The estimate of the cost was as follows —

	I/18
Six coolies at Rs 10 per month for six months	360
One e sepoy or non-commissioned officer at Rs 20	
per month for six months	120
Railway fare of above at about	20
Appliances and kerosene oil	150
Railway fares from Lahore to Dacca of six sweepers	120
Construction of barracks for the sweeper stan	104
Rent of land and house for havildar and staff for six	
months	48
•	

"Once a week every collection of water in which mosquito larvæ had at any time been found was sprayed with a larvicide preparation similar to that recommended by Colonel W G Gorgus, the Panama Canal operations The original formula of this is, as supplied to me by Dr Bentley, was—

Total

Crude carbolic acid .. 100 gallons
Raisin . 60 ,,
Sol caustic soda .. 20lbs of solid insat sol

This had to be modified to meet the dilution of the solution of ciude carbolic acid obtainable, and the proportions of the larvicide we used were as follows—

This was applied once a week to all breeding grounds with a success knapsack spray, as used by Dr Bentley

in the Bombay operations

This concoction formed an efficient larvicide, no larvæ being discovered in any collection of water within one week of treatment with the exception of scanty in mature larvie of C Concolor which appear to be rather resistant to the action of the larvicide Egg boats, however, were commonly visible, showing that eggs were being deposited although not maturing

"The sequence of events and conclusions which one may fauly draw from these conclusions appear to be-

(1) That the culex infestation of the city was main

tained at about the same level throughout

(11) That in the month of December, the houses at the greatest distance from the city in the area under treatment were nearly immune from the pest, while those on the outskirts of the city were fairly well

(111) That when the pest began to be felt within the treated area the houses nearer the city began to feel it hist, while those most distant, ie, about 11 miles from the city, felt it ten days to a fortnight later showing the influence of infiltration

(1v) A southerly wind would be followed by an increase in numbers caught in the traps, and in the amount of inconvenience caused, showing the influence

of direct flight

It would thus appear (a) the mosquitoes reached the Ramna both by infiltration and direct flight, and (b) that the extensive breeding grounds of Dacca city were eventually able to stock with mosquitoes houses 11 miles distant"

"So far from it being possible therefore to carry out effective mosquito reduction in the Ramna within an area of about 2 square miles, by an expenditure of Rs 980 as I had been sanguine enough to hope, it appears that it would be necessary to carry out larvicidal measures in Dacca city as well, and to do this effectively, it would, in the first instance, be necessary to provide an efficient surface drainage system including canalisation of the thals at an approximate cost of some 50 lakhs of rupees, the sum which, as I am informed by the Sanitary Engineer, would be required to complete this work

I put forward these records of an interesting failure, and these somewhat dilettanti observations, carried out in the intervals of the touring season, as they show the distance at which a prolific breeding ground can make itself felt within a sterile area, and the fruitlessness of

larvicidal measures upon a small scale"

# DIPLOMA IN PSYCHOLOGICAL MEDICINE

THE Regulations for this newly instituted Diploma have recently been issued by the University of Cambridge The examination for the Diploma is to be divided into two parts first part of the examination will consist of (1) a paper, and (2) a practical and oral examination in the Anatomy and Physiology of the Nervous System, (3) a paper, and (4) a practical and oral examination in Psychology The second part of the examination will consist of (1) a paper, and (2) a clinical and oral examination in Neurology (3) a paper in Psychiatry, Lunacy Law and Asylum Administration, (4) a paper containing a choice of subjects for an Essay in Psychiatiy, (5) a clinical and oral examination in Psychittiy Auy person whose name is on the Medical Register is admissible to Part I Candidates for Part II must, at the time of entering for the Examination be Registered Medical Practitioners of not less than two years' standing, and must

produce evidence of having had twelve months' The Examination for special clinical experience the Diploma will be held once in each year 1913 there will be an Examination for Part I, beginning on Tuesday, June 31d, and for Part II, beginning on Tuesday, July 1st, will be held in London during March or April In 1914 and m subsequent years the Examination for Part I, will be held at Cambridge during May or June Every candidate will be required to pay a fee of six guineas before admission or re-admission to either Part of the Examination A candidate who has passed both Parts of the Examination to the satisfaction of the Examiners will receive Diploma testifying to his competent knowledge of Psychological Medicine All applications for information respecting this Examination should be addressed to Dr. C. S. Myers, the Psychological Laboratory, Cambridge

### TROPICAL AUSTRALIA

THE question of reserving the northern portions of Australia for whitemen is well known to be one of considerable importance in Australia, and we have before us two preliminary reports\* of an expedition to the Northern Territory in 1911 under the authority of the Minister for External The member of the expedition were Prof B Spencer, Prof Gilroth, Dr Woolnough and Di A Breinl (the latter being the Director of the Australian Institute of Tropical Medicine) We quote the following extract -

"(a) Settlements (Darwin and Pine Creek)—Bearing in mind that the country was visited at the time of year when the climate was most suitable for Europeans the general health was remarkably good. The families of the second generation examined showed no signs of physical deterioration, but we were informed by certain persons that it is regarded as advantageous to send children away on reaching the age of ten or twelve, but from cases that have come under our own observation, we are unable to state positively that this is absolutely necessary so far as health conditions are concerned, factors such as that of education entering into the question

There are none of the tropical diseases such as malaria and dysentery endemic in the settlements, and as long as the necessary hygienic piecautions are observed, there

is no reason to anticipate their appearance"

"As regards the intelligence of the school children, the evidence available points to the fact that there is no deterioration observable, the standard being the equivalent of that of more southern settlements
"There are at present men who have spent from three

to four decades in the Territory, and every one of them compares favourably, both as regards physique and energy, with men of similar ages elsewhere"

"The healthiest and strongest are those, both men and

women, who take regular open air exercise both in the relatively cool and in the hot season"

Breinl's report on the medical aspects of the country is a valuable one The so-called "Northern territory" comprises no less than onefifth of the Australian Continent and had in 1911 a very scanty population, 3,005 in all, consisting of 1,173 Europeans, male and female, including

<sup>\*</sup> McCarron, Bird & Co, Publishers, Melbourne

children, 1,340 Chinese, 89 Japanese and the rest Philippinos, Malays and other races The out-ofdoor-dwellers in the bush were on the whole healthren than the townspeople and men healthren than the women

The following tropical diseases were slightly prevalent ulcerative granuloma, a very few cases of beil-beri, raiely filaliasis, trachoma a few cases. but malaria was fairly common Mosquitoes were "Nyssorhynchus annupiles" is in all probability the agent which distributes malaria (as this insect has been proved to do in Formosa) On the whole, malaria is widespread throughout the parts visited, and epidemics are not unknown It is probable that the malignant tertian variety was introduced from New Guiner and the benign tertian from Western Australia and Queensland Apparently the "wild 'blacks did not suffer from malana, but it was "common among the blacks who have come in contact with and have been employed by the whites"

Yaws is very common, not a single case of leprosy was found among aboriginals, but venereal disease is common among all the inhabitants. Small-pox is common and greatly dreaded by the natives

These reports are only preliminary and no certain conclusions can be drawn. The conditions of life as described in the reports and as seen in the numerous photographic illustrations show that the life is a tropical one, and conditions are not very different from the more northerly parts of Northern India, though the hot weathers are not so severe or trying.

No doubt parasitic disease is the main enemy, and here we have a splendid opportunity for demonstrating on a large scale, if the white man can live, work and bring up healthy and vigorous descendants in a tropical climate, but this can only be possible, we believe, if the most ligorous precautions are taken to keep down and keep out the parasitic affections of the tropics Many of them are there, but the population is small, and if an attempt was made on lines as thorough as that of the Panama Canal, we think it might well be successful If the Asiatic races are to be kept out of Northern territory, it can only be done by populating it with white races, and to do so enormous efforts are certainly needed and bid fan to succeed.\*

A COMMITTEE of representatives of Medical Freemasons' Lodges in London will be held in London on 11th August 1913, in the Grand Temple at Freemasons' Hall, Great Queen Street, W.C., under the presidency of the M. W. the Progrand Master Lord Ampthill, GCSI, GCIE, in connection with the International Medical Congress All brethren who wish to be present should notify the fact to the Grand Secretary at the above address.

# Reviews

Clinical Methods for Indian Students— By Major G T BIRDWOOD, I MS, Civil Surgeon, Lucknow Calcutta Thacker, Spink & Co, 1913 Price, Rs 2-8

This is an extremely useful little book written as a guide to students and general practitioners in India in diagnostic and therapeutic measures Lt-Col Roberts, CIE, IMS, contributes a foreword

We are strongly of opinion that the little book is a useful one and contains a vast amount of information in clinical methods in a clear and handy form. The pages are interleaved so that the owner can add notes of other methods.

The best way to indicate the contents of the little volume is to give a selection of the headings of the 68 sections into which it is divided—we can only quote a few—eq,

- 1 How to examine blood for malaria
- 2 How to make a leucocyte count
- 3 How to estimate hæmoglobin
- 4 How to examine for Leishman-Donovan bodies
- 5 How to stain sputum for tubercle bacilli
- 6 How to examine a throat swab
- 7 How to fill a blood capsule for Widal's test
- 8. How to examine for plague bacteriologically
- 9 How to prepare a vaccine
- 10 How to inoculate antitoxic serums
- 11 How to treat a case of snake-bite
- 12 How to examine for spirochæta pallida
- 13 How to use Salvarsan
- 14. How to identify mosquitoes
- 15 How to test for albumen in urine.
- 16 How to test for blood in urine
- 17 How to examine fæces for amæbæ
- 18 How to inject quinine for liver abscess.
- 19. How to cut sections of fresh tumours
- 20 Note on common stains and materials

It will be seen from this selection what a practical and useful little book this is. We can heartily recommend it and no hospital in the mofussil should be without a copy.

The Soldier's Foot and the Military Shoe.--By Major Edward L Munson, Medical Corps, U S Aimy

Major Munson's work on military hygiene and field service work of a medical corps are well known to most of our readers. The present eminently practical book is on the soldier's foot and his boots.

Napoleon, Wellington, Ney, and many other great generals have left sayings on record which show how much importance they attached to the proper fitting of boots for soldiers, and if a length of the time and trouble were taken to fit

<sup>\*</sup> See Admiral Mahan's recent book Arbitration and Armament for his view on the necessity of peopling both sides of the Pacific with Anglo Saxon laces, as arising from the opening of the Panama Canal

the infantity soldier with good shoes as is taken over "stables" in a cavalry corps, we would not read of 10 per cent "being the average loss which must be expected" from sore feet among unseasoned troops on taking the field German Army 7 per cent of conscripts are rejected yearly on account of foot defects due to bad shoeing At the commencement of the Firmco-Prussian war no less than 30,000 soldiers were unfit for service from this cause alone

The Army authorities of the United States have taken up this in a thorough manner, and Major Munson's book is the result of his work as President of the Army Shoe Board and is intended as a handbook for officers and N-C O's of the line

Major Munson shows that "a very large proportion of the foot injuries common to marching tioops are unnecessary" and are preventable

The great need is that much more trouble should be taken to fit the individual soldier, and the Quartermaster's Department must keep a very large stock of boots of all sizes and widths, and the soldier must not be allowed to take away a pan of boots till he had had them carefully fitted on and till his choice has been passed by an office, for it is recognised that the private in most cases is unable of too thoughtless to take the trouble to fit himself comfortably, and everyone who has bought a readymade pair of boots will quite understand this Major Munson shows by aid of X-Ray photos the deformities produced by the fushionable boots of the city man The whole chapter on the points of the military boot is extremely good and is also interesting. Socks are an important factor and a useful chapter is given to them Coins and bunions are discussed fully

We most strongly recommend this boot to our military relders

It should be on the table of every mess in India It costs 1 dollar 35 cents, and is obtainable from the U S Cavalry Association, Fort Leavenworth, Kansas, U S A

A Text-book of Obstetrics -By BARTON COOKE Hirst, M.D., Professer of Obstetrics in the University of Pennsylvania, etc. Pages 1013, W B Saunders & Co Price, Cloth 5/- net

THE fact that this text-book has passed through 7 editions since it was first issued in 1898 proves that it has met with a well merited success

This list edition has been thoroughly revised, ind brought up to date and the more important of the recent advances in the field of Obstetrics or Gynacology have been incorporated in it

The uticle on diseases of the breasts has been considerably extended, the author holding that the head of an Obstetic Department has opportumities of acquiring experience in diagnosis and skill in the treatment of these diseases that no general surgeon can rival

This book being now so well known as one of the best works on the subject emanating from the American School, it is unnecessary to give a detailed review of it Suffice it to say that this latest edition more than justifies the already widespread popularity that this book enjoys

The printing illustrations (of which many new ones have been added to this edition) and the general "get up" of the book are in keeping with the usual high standard of excellence that we have been led to expect from the firm publishing it

Lectures on Clinical Psychiatry -By Kraeplin (Johnstone) Baillicie, Tindall & Cox London Demy 8vo Piice, 10s 6d

THE third edition of this work fully maintains the high standard of excellence of the previous editions

The descriptions of the various types of mental disease are excellent word pictures, the salient features of each type are described in a forcible way so as to impress them on the reader addition of the after-history of each case as far as it can possibly be ascertained as a foot-note is an excellent idea, verifying the prognosis given in

A note on seco-diagnosis in relation to mental disease is added to this edition, a useful airangement, whilst the addition of appendices on dementia piecox and maniac depiessive insanity hung our knowledge in these subjects up to

This book can be confidently recommended to every practitioner as an excellent clinical treatise on the important subject of mental diseases

Serum Diagnosis of Syphilis and Luctin Reaction, together with the Butyric acid test for Syphilis —By HIDEYO NOGUCHI, N.D., M sc. J B. Lappincott Co Calcutta Butter worth & Co (India), Ltd 12s 6d -Rs 96

In this work Noguchi gives a fair resumé of all the tests for syphilis that have found any Most of the letter-press is, of course, taken up with descriptions of his own tests, and we are glad to note that now he appears to favour the use of fresh complement, whereas when he first gave his human-hæmolytic system as a modification of the Wassermann tests to the would he strongly recommended it as feasible at the bedside, so to speak, by reason of dired complement on blotting paper being used, the amboceptor being supplied in similar condition

Those who know naught of serology will find much information, couched in clear language in this work, and after its perusal will know that there is no royal road to success in serology The Wassermann reaction is not one that can be carried out by anyone who is able to detect albumin in a specimen of urine, or even the B tuberculosis in a specimen of sputum

Wherefore we recommend the work to our readers

Practical Anatomy — By J C HFISLER, Philadelphia J B Lippinott Co. Sole agents in India, Messrs Butterworth & Co, Calcutta Price 21s net

This seems to us to be a very useful and practical volume on anatomy from the point of view of the student and his dissecting. The details of each region are presented in the order of dissection and the illustrations are well adapted to accompany the descriptions given. Very wisely we believe brief references are made to the relation of structure which have an importance in practical medicine and surgery.

As regards terminology Dr Heisler believes that the new terminology is a matter of growth and evolution, consequently he has not adopted in its entirety the new or Basle nomenclature, but B N. A terms are either used directly or are added in parentheses

The book can be relied upon as a sound book tor the student in the dissecting room. It is freely and admirably illustrated, and the publishers have put forth the book in a guise worthy of their high reputation

Ætiology of Beri-beri —By M. L. Kamnath, M D (Madras)

This little pamphlet written by Di Kamnath, MD, Instituctor, Medical School, Vizagapatam, was prepared as a thesis for the MD degree of Madras in 1911. It is as interesting as MD theses usually are. It contains a full statement of the ætiology and clinical aspect of beil-berr as far as known in 1911. Recent research has put some of it out of date.

The Principles and Practice of Medicine.—
By Sir William Osler (Bait), MD, FRS
Eighth Edition Largely Rewritten and Revised
Calcutta Butterworth & Co (India), Ltd, 1912
Pp 1147 Price Rs 15-12

IT would be superfluous on our part to attempt to criticise a work, such as the one under review, which is acknowledged to be the text-book "par excellence" on the Principles and Practice of Medicine

The fact, that it still retains its popularity, speaks for itself

Judging from the book before us we can most certainly say that, with Professor Osler, the success of the past has been truly the earnest of the future. This, the 8th edition, should still further enhance the reputation that the preceding editions have brought to its author.

The great specialisation that exists at the present time in all departments of medicine and its ancillary sciences, leads to the result that the achievements of one branch may remain almost unknown to those working in some other branch, though they may be of equal importance to medical knowledge

Professor Osler has succeeded in correlating these achievements. And to deal with the

extraordinary growth of knowledge much new matter has of necessity been incorporated in every section and many chapters have had to be entirely recast. Leishmaniasis, The Sporotischoses, the Colon infections, Poliomyelitis Pellagia, Disorders of Metabolism, Caisson disease, Ochronosis, Hæmochromatosis, etc., have all needed new sections

It is naturally impossible to insert everything that is written about a disease within the covers of any volume, and Professor Osler has the wonderful tact of knowing what best should be put in and what left out, this edition being only about 40 pages longer than the preceding edition

With regard to Leishmaniasis Patton has proved that Kala-azar is not transmitted by the Conorhinus

The mosquito, now, is being incliminated as the callier of that disease by Italian workers, notably Franchim, in our opinion on somewhat slender grounds

In the 7th edition it is remarked that the parasite is not found in the circulating blood. No mention is made in this edition that it is so found.

Colon infections receive for the first time a separate section. This is all the more acceptable as the practitioner has not yet realised the frequency with which post partum temperatures are due to coli infections such as pyelitis.

Acute Poliomyelitis, we note, occupies in accordance with its latest pathology its proper place amongst the specific infectious diseases, and not among diseases of the nervous system Flexuer's latest work on monkeys as of yore is quoted It is true that the infecting agent still belongs to the "aicana" of pathology, but the strides made by Flexner in the elucidation of the pathology of acute anterior poliomyelitis We find its latest treatment are tremendous by Hexamethylenamine mentioned This lests on the hypothesis that urotionine administered by the mouth leads to the appearance of formaldehyde in the cerebro-spinal fluid

Diseases of the ductless gland have in this edition been assigned a separate section being no longer considered along with diseases of the blood

The article on the pituitary gland is excellent, its brevity being made good at the end of the chapter by referring the reader to works by Hastings Gilford, Swale Vincent and Cushing

The examinee is catered for when we read, as it were in a nutshell, "Hyperpituitarism may lead to gigantism, when the process antidates ossification of the epiphysis, to acromegaly when it is of later date, "Hypopituitarism to adiposity with skeletal and sexual infantilism when the process originates in childhood; to adiposity and sexual infantilism of the reversive type when originating in the adult"

The volume is thoroughly practical and can be recommended as a guide in diagnosis, symptomatology and treatment to all practitioners in whose library the book should most certainly find a place

# SPECIAL ARTICLES

I

# THE MEDICAL SERVICES IN 1912

The past year has been one of peace, the only exception being the end of the Abor expedition

The administrative changes in Bengal, announced at the Imperial Durbar in the closing days of 1911, necessitated corresponding changes ın medical administration Since October 1905 the two provinces of Bengal and Eastern Bengal with Assam each had, as Administrative Medical Officer, an Inspector-General of Civil Hospitals with the lank of Colonel These two provinces being rearranged in three, a third A M O became necessary Bengal has retained its I G CH, the IGCH of Eastern Bengal and Assam remains as A M O of Assam, but, that province being a small one, took over also the duties of I G of Pissons and of Sanitary Commissioner, while the new province of Bihar and Orissa also got an I G CH, an appointment which will presumably increase by one the number of Colonels in the Bengal Service was hoped that when Bengal proper became a Governorship, and so was placed upon the same footing as the other two old Presidencies of Madias and Bombay, the I G. C H of Bengal would receive the rank of Surgeon-General, like the A M O of Madras and of Bombay change, however, has not yet been sanctioned The I G C H of the new Bihai province also has not yet been formally gazetted to the lank of Colonel

The Public Service Commission, which is at present holding meetings and taking evidence in India, will deal with the future of the I M S next cold weather

A reorganisation of the Sanitary Department has been carried out during 1912 The appointment of Sanitary Commissioner with the Government of India, vacant for a year after the death of Lieutenant-Colonel Leslie, has been That office, however, again became filled. immediately subordinate to that of the Director-General, instead of holding a semi-independent position as it had done for ten years past new policy was entered upon in 1912, in the appointment of independent medical men as Deputy Sanitary Commissioners An improvement in municipal administration and in public health should result from the appointment of health officers in all large towns, and the increase in number of such posts should do something I

towards opening out a career for Indian Medical

During 1912 a formal ruling was given that officers of the Bacteriological Department are eligible for promotion to the administrative grade Such a ruling may be reassuring to the officers of that department, but was hardly necessary The selection of the present Surgeon-General of Madias, over the heads of several seniors, for promotion to that rank, in 1911, showed clearly that such officers were eligible for promotion He had served in the Bacteriological Department for the last ten years and more.

The foundation of a Tropical Medical School in Calcutta has been sanctioned during the year Such a school should have a future. There is no city in the world which affords greater scope for the study of tropical diseases than Calcutta

Promotion has run its course during 1912 In the R A M C there were three steps to Surgeon-General, and ten to Colonel One of the newly promoted Colonels retired two days after his promotion Bengal, Madras, and Bombay, each got one step to Colonel The Madras promotion was antedated to November 1911

The following table shows the comparative run of promotion in the Medical Services, giving the length of service as promotion of the junior officer in each grade at the end of 1912. The R A M C, after having experienced more rapid promotion for many years than the I M.S., or at least than the Bengal and Madras Services, has now fallen somewhat behind them

	Colonel	Selected list
R A M C	29½ years	263 years
Bengal	26 ,,	252 ",
Madi as	28½ ,,	204 ",
Bombay	25¼ ,,	241 ",

During 1912 an officer of the I M S General List got Brevet promotion to Major, a very rare distinction in the history of the I M S

The number of honours bestowed during the year was not large, naturally so, after the distribution at the Imperial Darbar. The most noteworty is the GCVO conferred upon Sir Richard Havelock Charles. Only once before has the Grand Cross of any order fallen to the lot of an officer of the IMS; the civil GCB given to Sir John McNeill, of the Bombay Service, in 1839, more than seventy years ago. Both, however, had retired some years earlier.

The number of deaths among men on the active list has been small, six in the R. A. M. C. and two in the I. M. S. out of a strength of 778 at the beginning of the year, a very small number, which speaks well for the general physique of the service Among the former were Surgeon-General Kerin, and Colonel Lambkin, the well-known authority on syphilology. The Bengal Service lost one man, Lieut-Colonel B. C. Oldham, in January, in the General List of the I. M. S. one death took place, Captain H. A. Dargan. No death occurred

among the Madras and Bombay men, now only a small number.

Among officers on the retired list, of course, there were many deaths, including those of several Crimean and Mutiny veterans, now a rapidly dwindling band. The most noteworthy names are, in the R. A. M. C., Surgeon-Generals Sir John Woolfryes, S. B. Roe and D. A. C. Fraser, in Bengal, H. M. Greenhow, the last survivor among the medical officers who took part in the defence of Lucknow, E. A. Brich, formerly Superintendent of the Presidency General Hostal in Calcutta, and Andrew Duncan, in Madias, H. E. Busteed, the author of Echoes of Old Calcutta

Although they were not members of the services, the deaths should also be noted of Dr T L Pennell, the famous medical missionary of Bannu, and of Dr Coulter, formerly a well-known physician in Calcutta

Surgeon-Major H. B Hinton still remains the senior officer on the retired list. He was certainly still living in December. He was born in March 1813 two years before the battle of Waterloo, so before these notes are published will, it is to be hoped, have completed his century

The strength of the I M S, as shewn in the Indian Army List of January 1913, omitting one officer who retired a few days before the end of 1912, was 770, or eight less than on 1st January 1912. They were distributed as follows—

$$\begin{array}{c|cccc} \textbf{Bengal} & \textbf{152} \\ \textbf{Madras} & . & 54 \\ \textbf{Bombay} & 40 \end{array} \qquad \begin{array}{c} \textbf{246} \\ \textbf{40} \end{array} \} \qquad \begin{array}{c} \textbf{770} \\ \textbf{524} \end{array}$$

It is sometimes said that it is necessary to reduce the constantly increasing numbers of the I.M.S. The Army List of July 1861, more than half a century ago, gives the then strength of the I M.S as 819, nearly fifty more than at the present day, though the annexation of Upper Burma, six and twenty years ago, might have justified some increase, and has certainly found occupation for a good many members of the service

Military Letter No 340 of 7th November 1864, from the Secretary of State, published in India as GGO No 1060 of 23rd December 1864, in paras 17 and 18 fixed the strength of the IMS as 861 This number, however, was never actually reached.

THE MEDICAL SERVICES IN 1912

I -R A M C
A -Deaths

No	Rank	Name	Date	Remarks
1 2 3 4 5	S G Colonel Lt Col Do Major Captain	M W Kerm F J Lambkin H B Mathias R G Hanley L E L Parket F H Somers Gard- ner	3rd May 8th Mar 28th June 30th Jun 25th Mar	Dover Bloemfontein Khartoum Bloemfontein Puna, Bright's disease Southsea

	B —Retnements					
No	Rank	Name	Date	Remarks		
1	S G	Sir F W Trovor,	lst Jan			
1	Do	J C Dorman	20th Mar			
2 1 5 6 7 8	Do	G D Bourke	15th Oct			
1	Colonel	S C B Robinson	21st May			
J	Do	H G Hathaway	8th June	On H P		
9	Do Do	J R Dodd C R Tyrrell	12th Oct	H P 9th Sept		
6	Do Do		11th Sept	0 11 11		
0	טם	W G A Bedford,	19th Sept	On II 1		
9	Do	R I D Hackett	13th Nov			
10	Do	R Jennings	30th Dec	On H P Retired		
10	170	10 ochmings	oun Dec	2nd Jan 1913		
11	Lt Col	F S Heuston	22nd Jan	200 Jan 1918		
12	Do	E P Nicholls	9th Feb			
13	$\bar{\mathbf{D}}_{0}$	W A Morris	1st Mar			
14	Do	R J Copeland	10th Mar	On T. H. P. (F. P. 10th Sopt.)		
15	Do	G F Gubbin	19th Feb	,		
16	Do	R R H Mone	8th May			
17	Do	J N Salvage	15th May			
18	Do	W L Roade	14th Aug			
19	Do	A Dodd	18th Sept			
20	Do	C W Johnson	11th Oct			
21 22	Do	G E Hale, DSO	23rd Nov	}		
23	Major	A E Thorp E C Anderson	20th Jan			
24	Do 1	C W Reilly	30th Jan 27th July	•		
25	Do Do	R F E Austin	27th July			
26	Do Do	N Marder	27th July			
27	100	F G Faichnie	27th July			
28	Do	A J Chambers	27th July			
29	Do	H P Johnson	9th Nov			
30	Captain	C Kelly	5th Jan	On T II P (F		
			[	P 5th Jan		
	}	l		1913)		
31	Dο	H L Gotelee	24th April			
32	Do	F J Turner	3rd July			
33	l Do	R M Ranking	26th Oct			
34	Do	L Bonsfield	6th Nov 19th Oct	1st Life Guards		
35	Surgeon	G S C Hayes	lou ou	130 Dito Guillus		
36	Capt Lieut	J R Hill	30th Jan	Transferred to Reserve		
37	Do	E S Calthrop	9th Mar			
38	Do	M Drummond	5th June			
-	1	)	)			

### C -Promotions

No	Old Rank	Name	New Rank	Date	REMARKS
1 2 3 4	Colonel Do Do Do	M W Kerin Sir D Bruce L E Anderson II G Hathaway	S G Do Do Do	20th Mar 1st Apl 4th May 15th Oct	Dorman, R Supernumerary v Kerin, D From H P v Bourke, R
5 6 7 8 9	Do Do Lt Col Do	C H Melville C E Nichol S Westcott B M Skinner R Kirkpatrick H S Macgill	Colonel Do Do Colonel Do Do .	24th Feb 9th Mar 20th Mar 4th May 21st May 8th June	Brovet  o Lambkin, D  k Kerin, P  a Anderson, P  c Robinson, R  t Hathaway,  H P
11 17 13	Do Do Do	F Smith C R Tyrrell R J S Simp	Do Do Do	4th Sept 9th Sept 11th Sept	o Brevet o Dodd, H P o Tyrrell, R
14	Do	son E H Lynden	Do	19th Sept	, Bedford, H
15		Bell R H Firth	Do	13th Nov	Hackett, R
16	Colonel Lt Col	A L Tate	Do	31st Dec	ι Jenninga, Η P

	D—Honous 8					
No	Rank	Name	Honour	Date	Revarks	
1 2 3	Surgn Genl Do Do	A F Bradshaw A T Sloggett F M. Corker	K C B K H S K H P	14th June 1st Jan 20th Mar	Tievor, R	

	AP	APRIL, 1910 J						
	===			D —Hon	ours—(cor	itd)		
Secondary   Seco	o R	ank		Name	Honour	Date	REMARKS	
	4 <sup>1</sup> Su	04.6.			16th July	(Retired)		
	5	Do   W Babtie, V C		C B G S Pen				
Lt Col   Sir W B Leish   K H P   15th Oct   a Bourke, R	7 C	olonel	W G	Macpher		13th Jan	_ ,	
Major	S Li	t Col		V B Leish	кнр	15th Oct		
		ſ	mai	n		15th Nov		
No					3rd class			
1   S   G			E	-Deaths o	of Retried	Officer s		
2	No	Ran	ı 	Nam	e	Date	RFMARKS	
S	1	S G		Sir J A W	oolfryes,			
S N G   4   Colone		_	ļ	KCB				
Colone			G	DAC	Fraser			
No   Rank   Name   Date   Remarks	4		el			9th Feb	London	
Surg Col   B J Robbins   23rd Dec   15th Api   28th Jan   10   Do   B T Giraud   27th Aug   27th	5				Ì	ZISU API		
S			Col				Brighton	
9		D S				28th Jan		
10	9	Do	;	C B Moor	e í	4th July		
12	10			B T Girau	ıd İ	2nd July	Hove	
13   Brig Surg   G   Perry   21st Jan   (C old stream Guards), Sid mouth   N in e w ells, Dundee   24th June   6th Nov   Yalding, Kent   Col   F   Col   G   W   MeNalty   Surg Lt   Col   G   W   MeNalty   Surg Lt   Do   J   W   Jerome				J E Moffa	ns tt	27th Aug 20th Sept		
14		Brig	Surg	G Perry	_		(Cold stream	
1								
Fout   Surg Lit   Col   Col   Lit Col   Do   J W Jerome   Surg Lit Col   Do   J W Jerome   Surg Mar   Surg Major   J E V Foss   Surgeon   Surgeon   Surgeon   Surgeon   Shillingford   Surgeon   J E V Foss   Suth July   Seath July   Surgeon   Shillingford   Surgeon   T A Cocksedge   R C Johnston   W W Scarlott   Sth July   Sth July   Sth July   Surgeon   T L Rogers   The Aug   Coldstream   Guards   Sth Nov   Surgeon   T L Rogers   The Aug   Coldstream   Sth Nov   Standard			•	1			Ninewells,	
Col Lt Col Do J W McNalty J Standard South Nor Wood London  Surg -Maj Do W L Reid 19th June 22 10 Do T Morarty J E V Foss 23 Major J E V Foss 24 Do T A Cocksedge 26 Captain Bo Mast. Suig Do T L Rogers 1 L Rogers 1 L Rogers 1 L Rogers 2 Sth Mar 2	16	Do	T.+		arland		Yaldıng,Kent	
Surg - Maj		Col				7th Mar	Camberley	
Simpson   W L Reid   19th June   22   100   T Morrarty   14th Oct   2nd Jan   29th Feb   28th July			ol	G W Mcl J W Jero	Nalty me		Blackheath South Nor	
Peth June   14th Oct   2nd Jan   2		Surg .	-Maj	F Simpson	F Simpson		wood London	
Major   J E V Foss   2nd Jan   29th Feb   28th July   26th Jan   29th Feb   28th July   26th Jan   29th Major   100   W W Scarlett   100   W M McLaughlin   20th Mar   20th Ma							Ealing	
Do	23			JEVF	oss	2nd Jan		
Captain   Do   W W Scarlett   W M McLaughlin   Sth July   Sth Nov   12th Mar   7th Aug   Coldstream   Gu ard s  , Eltham   M an s field   Notts			on			29th Feb	Peckham	
No	26		un	R C John	ston	26th Jan	Bonchurch	
29   Asst. Suig   E M Wrench   12th Mar   7th Aug   (Coldstream Guards), Eitham   Mansfield, Notts	28	Do				18th July		
Do	29	Asst.	Surg	/E M Wr	ench	12th Mar	Buxton	
Do	J.	170		I T I Koge	11.5	7th Aug	(Coldstream	
	31	Do		G Sport o		003.35	Eltham	
No					22nd Nov	Mansfield, Notts		
No Rank Name Date REMARKS  1 It Col B C Oldham 9th Jan Osborne, Isle of Wight  B—Retriements  No Rank Name. Date REMARKS  1 Colonel It Col W A Syker 25th Mar 18th July Selected list, Extra pen sion Selected list, extra pen selected list, extra pen					-Bengai		<u> </u>	
1   1 t Col   B C Oldham   9th Jan   Osborne, Isle of Wight								
B—Retriements  No Rank Name. Date Remarks  1 Colonel It Col WA Syker 18th July Selected list, Extra pen sion Selected list, extra pen	No	Ra	nk	Nai	Name		REMARKS	
No Rank Name. Date REMARKS  1 Colonel It Col W A Syker 27th Dec Selected list,  2 Do J 1 Pratt . 27th Dec Selected list, extra pen sion Selected list, extra pen	1	lt C	ol .	B C Oldham		9th Jan	Osborne, Isle of Wight	
1 Colonel D ffrench Mullen W A Syker 25th Mar 18th July Selected list, Extra pen sion Selected list, extra pen	B -Retriements							
2 It Col W A Syker   25th Mar 18th July   Selected list, Extra pen sion   Selected list, extra pen sion   Selected list, extra pen sion   Selected list, extra pen	No	R	ınk	Name.		Dite	Remarks	
3 Po J 1 Prott . 27th Dec Selected list, extra pen				D ffrench W A Syk	Mullen es	25th Mar 18th July	TD4	
SIGN	3	Po	•	J 1 Prati	,	27th Dec	Selected list,	

R	Retar	ements-	(contd	)
Ð		Citables	(	•

No	Rank	Name	Date	REMARKS
3 6 7 8 9 10	Lt Col Do Do Do Do Do Do Do	R Shore  E R W C Carroll F C Clarkson C E I, Gilbert J Chaytor-White D R Green H M Farle	25th Dec 1911 25th Aug 1st Mar 21st Sep 22nd Dec 1st Aug 28th July	Selected list

### C -Promotions

No	Old Rank	Name	New Rank.	Dat•	Remarks
1	Lt Col	P Hehm	Colonel	25th Mar	v ffrench Mullen, R

### D -Honours

0 Z	Rank	Name	Honour.	Date	REMARKS
1 2 3 4 5 6 7	Do	R N Campbell Sir R H Char les D Prain D Prain R Bird C H James J Davidson	C B GC.VO C M G Knight M V O C I E D S O	14th June 4th Feb 1st Jane 14th Jun 4th Jan 14th June 6th June	

### E -Deaths of Retired Officers

No	Rank	Name	Date	REMARKS
1 2	Brig Surg D S G	A M Dallas, CIE W Watson	9th Nov. 16th June	Ealing Comtorphine, Edinburgh
3 4 5 6 7 8 9	Do Do Lt Col Do Do Do Do Do	F W de Fabeck T S Venle E A Birch K M Downie J Scully R A K Holmes G Price W Owen	28th Jan	Alassio, Italy Craydon London. Cannes Eastbourne London Utkamand Weston super.
11 12 13 14 15 16	Do Do Do Do Brig Surg	A Duncan F A Rogers H M Greenhow J C Corbyn F Powell B Kendall T G Skardon	18th Oct 2nd Nov 26th Nov 24th Oct 9th May 3rd Sept	Mare London  Esher, Surrey Cheltenham Redhill Upper Nor wood
	Pug purg	T G Semidon	24th Jan	Paignton

## III -MADRAS

A -Deaths

Nul

### B -Retnements

No	Rank	Name	Date	REMARKS
1 2	Colonel It Col	F C Reeves H Greany	21st Nov 1911 27th Apl.	(Died 12st April) Selected list, extra pen
3 4 5	Do Do Do	H Thomson C F Fearnside P C Gabbett	1st Feb 10th Sept 26th Aug	sion. Selected list

-C	-P1	omotions

Old Rank		Name	New Rank	Date	RPMARKS
1	Lt Col	A O Linns	Colonel	21st Nov 1911	2 Roeves, R

### D -- Honours

Nil

### L -Deaths of Retired Oficers

No	Rank	Name	Date	Remarks
1 2 3 4 5	S G Colonel Brig Surg B S Lt- Col Surg Lt	W Van Someren F C Reeves H E Busteed P R Martin S I., Dobie	20th May 21st April 1st Feb 24th June 19th July	Malvern London
6 7	Col S M Do	J Fitzgerald J J Hefferman	25th July 26th Feb	London

### IV -BOMBAY

1 -Deaths

Vil

#### B - Retriements

No	Rank	Name	Date	RFMARKS
1 2	Colonel Do	W A Corkery C J Sarbies	26th Aug 6th Dec	

#### C -Promotions

No	Old Rank	Name	Now Rank	Date	Remarks
1	Lt Col	B B Grayfoot	Colonel	25th Aug	1 Corkery, R

### D -Honours

No	Raul	Name	Honour	Date	Remarks
1	s G	II W Steven	C S. I	14th June	

#### E -Deaths of Retired Officers

No	Rank	Namo	Duto	REMARKS
1 23 4 5	Colonel Lt Col Do S M Do	W E Cates A S S G Jayakar M L Bartholomeusz H O Thorold M B Braganza	29th July 14th Aug 8th Aug 29th April 20th Dec - 1911	Weybridge

## V —I M. S

#### A -Deaths.

No	Rank	Name.	Dato	RPMARKS
1	Captain	H A Dongan	25th July	Rangoon

B -Retirements.
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No	Rank	Name	Date	REMARKS
1 2	Major Captain	D N Anderson A F Hayden	1st Sept 23rd Jan,	On T II P
3	Do	R. D Macgregor	28th Oct	Jan 1910 On Perma nent half pay

#### C -Promotions

No	Old Rank.	Name.	New Rani	Dato	REVARES
ı	Captain	W. T McCowen	Bt Maj	29th Aug	Kazerun,

### D -- Honows

Nil

#### L -Deaths of Retired Oficers

No Rank		Namo	Date.	REMARKS
1	Captain	D Stoel	12th Dec 1911.	

D. G. C.

### II

# ON THE SUBSTANCES PROTECTING AGAINST DEFICIENCY DISEASES

As a result of my researches three years ago (1) (2) (3), I was able to place the condition known in India as Epidemic Dropsy in the group of deficiency diseases Casimir Funk (4) in his recent excellent summary of the etiology of deficiency diseases includes the following —

- Berr-berr
- 2 Polyneuritis in Birds.
- 3 Epidemic Diopsy.
- l Scurvy.
- 5. Experimental Scurvy in Animals.
- 6 Infantile Scurvy.
- 7. Ship Beil-beil.
- 8 Pellagra

He pertinently remarks (5) "There is perhaps no other subject in medicine where so many contradictory and inexact statements were made, which instead of advancing the research retaided it by leading investigators in a wrong direction"

From my own experience in India I can endorse Funk's statement. At the time I commenced my investigations many theories were prevalent as to the causation of epidemic dropsy, thus a view, which was strongly held in Calcutta by my Indian colleagues, was that the disease was induced by the adulteration of mustard oil by a mineral oil, it was considered to be insect borne, again it was held by some to be a specific infectious diseases, etc, etc.

Since my investigations a number of important papers have appeared concerning the substances which are deficient in diets, which cause these diseases, particularly by Funk(6), (7), Cooper and Funk,(8) Cooper,(9) Moore, Simpson and Adie,(10) Axel Holst and Frolich,(11) Vedder,(12) Schaum un(13)

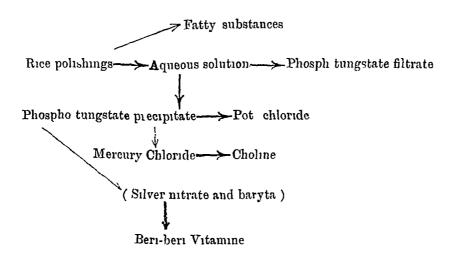
As a result of recent research our conception of this group of diseases has now definitely crystallised, and is founded on scientific experimental evidence, and, consequently, in the prevention and treatment of these diseases we are enabled to concentrate all our energy on the essential factor, instead of, as formerly, dissipating it in attempting, by the unsatisfactory method of trial and error, to find some means of combating them

It may be convenient and of practical utility, therefore, to give a short account of the present position of this important problem

NATURE OF THE SUBSTANCES PROTECTING AGAINST DEFICIENCY DISEASES

With the possible exception of Pellagia the above diseases are produced by the absence of a

Vitamine will bring about a train of signs and symptoms, apparently different from those produced by a diet deficient in Beri-beit Vitamine This explanation probably bridges the difficulty advanced, more particularly by clinicians, that a disease such as classical Ben-ben appears to be so sharply marked off by its signs from, say Scurvy or Epidemic Dropsy, as to be a different entity We have, however, to appreciate the fact that we are dealing with defects of specific substances, and these substances, although related, differ from one another in certain respects, and, therefore, then absence, as would be expected, brings about different results which are puzzling to clinical observers until the true conception of the etiology of the group of diseases is grasped As Funk has shown the amount of Vitamine present in food-stuffs is extremely small, thus from 1 kilogram of rice polishings only 1/2 gram of crystalline substance was obtained, and this forms the chief experimental difficulty. He gives the formula of the Berr-berr Vitamine as  $C_{17}$   $H_{20}$   $N_{2}$ O, His method of obtaining it by fractionation is shown in the following table —



certain essential substance from the diet has given the name of Vitimine to this substance, and he speaks of a Beri-beil Vitamine, and a Sem vy Vitamine, and these two substances are different, thus, the Scurvy Vitamine is much less stable than the Berr-berr Vitamine as the investigations of Axel Holst have shown Also different food-stuffs which are known to prevent Berr-berr, eg, yeast, oats, etc, are unable to prevent Scurvy, grains containing no Scurvy Vitamine develop the protective capacity on germination Further research on this complex problem will show, probably, that each deficiency disease is produced by the absence of a specific Vitamine As the group of conditions known as Malaita is divided into Quartan, Benign, and Malignant Tertian, according as a particular form of parasite is present in the blood, so we may be able, on the other hand, according to present knowledge, to subdivide the group of deficiency diseases according as a specific Vitamine, eq, of Beri beil of Scurvy, etc, is not available for the metabolism of the body Thus the absence of the Scurvy

Funk (14) in continuation of his previous work has investigated yeast for Vitamine. He considers that Vitamine must be regarded as a base probably belonging to the pyramidine group, and has the following formula.

The chemical properties of the curative substance suggest that it forms a constituent of nucleic acid

Edie, Evans, Moore, Simpson and Webster (15) have separated from yeast a curative substance which they call Torulin, and the formula for the crystalline product is N (CH<sub>a</sub>)<sub>a</sub> C<sub>4</sub> H, O<sub>2</sub> (HNO<sub>3</sub>)

Funk found that so minute a dose as 40 mgm of the Vitamine was not only sufficient to cure a pigeon, which had developed neuritis after being fed on polished lice, but was able to maintain the animal in health for 12 days when the polished rice was continued. Funk considers that the Berr-berr Vitamine is necessary for the metabolism of the nervous tissues. The want of

this substance in the food forces the animal to get it from its own tissues. The result is an enormous loss of weight. After this available stock begins to be scarce there is consequent breaking down of the nervous tissue, with the result that nervous symptoms such as are observed in Berr-berr manifest themselves.

Vedder(16) in a recent paper states that he failed to obtain the neuritis—preventing substance in the Phosphotungstic acid precipitate, but as his method differed slightly from that of Funk s he does not regard his work as disproving the statement of Funk that the curative substance is precipitated by Phosphotungstic acid concludes that the neuritis-preventing substance is a most delicate compound and that chemical manipulations with this substance must take place only under certain, as yet undetermined, conditions if they are to be successful He also showed that the neuritis-pieventing substance is not volatile, but is destroyed by heat, and that it is neither an morganic salt nor an alkaloid interesting to note in this connection that Cooper (17) found that strychnine had no curative properties, but, although the symptoms of polyneuritis remained as acute as ever, it was able to prolong the life of the birds for periods from two to five days In view of the fact that Indine is an important constituent in the thyroid secretion, and in smaller amounts is found in milk, Vedder (18) made observations to determine whether or not Iodine had any protective capacity against experimental neuritis his experiments showed that it was quite inefficient in this respect

# METHODS OF DETERMINING THE PROTECTIVE VALUE OF ARTICLES OF DIET

### (a) By feeding experiment

In the history of the elucidation of deficiency diseases the work of Eighman and Axel Holst will always stand out prominently because it has given us definite experimental methods for determining what is the anti-neuritic and anti-scorbutic values of a given article of diet. Eighman(19) working in Batavia and Java, 1889-1897, showed that neuritis could be produced in a definite time in pigeons by feeding them on polished rice

Axel Holst and Frolich (20) showed that gumeapigs weighing over 350 grams fed on oats and

water develop scurvy

Using these two methods we can determine exactly the amount of a given article which is required to protect an animal from experimental neuritis, or scurvy. A list of articles of food can thus be drawn up showing the protective value of each. Such a list is of great practical importance to the administrator dealing with questions of public health, and also to the clinician. The latter can select articles very rich in Vitamines for the treatment of his cases of these diseases, eq, in berr-berr, yeast or mung dal or an extract of these can be made. Fraser and Stanton(21) recom-

mended for the treatment of berr-berr an acidulated alcoholic extract of rice polishings, a dessertspoonful of which equals 2 ozs of fattice polishings and is the daily dose for an adult suffering from berr-berr

# (b) By Chemical examination—Estimation of $P_2$ $O_5$

In addition to the experimental test the estimation of the phosphorus content is a useful method of determining the protective value of a food During my experimental researches on epidemic dropsy M1 D Hooper, FC8 (22) determined the amount of  $P_2$   $O_5$  in various grains used as articles of diet. The experimental animals fed onfoodstuff with a low  $P_2$   $O_5$  index invariably developed neuritis, whilst those fed on materials with a high P<sub>2</sub> O<sub>5</sub> index remained healthy Although the Vitamine does not contain phosphorus yet the determination of the P2 O5 content serves as an indicator of the anti-neuritic value of a particular grain Rice having a P. O. index below 0 4 per cent is dangerous. It has to be appreciated, as will be shown later, that the subsequent treatment of the rice, cooking, washing, etc., may still further lower the index and this must be The same food-stuff may, therefore, allowed for show a varying index in the raw and cooked condition

The isolation of the active substance is, as Cooper (23) points out not yet a practical proposition as it exists in such minute amount and is so difficult to separate

# DISTRIBUTION OF PROTECTIVE SUBSTANCES IN VARIOUS FOOD-STUFFS

In my researches (24) I showed that the mung dal of India had a high P<sub>s</sub>O<sub>s</sub> index and was markedly protective against experimental neuritis

Cooper (25) has recently contributed a valuable piper on this question. He compared the amounts of various uncooked food-stuffs required to be added daily to the polished rice diet to prevent, firstly, the occurrence of polyneuritis in pigeons of an average weight of 350 grams for 50 days, and, secondly, any appreciable loss of weight

The following table from his paper shows the results of his observations —

Jeanite of me oncerv.	1110115 -			
	Daily ra quired vent ritis	tions re I to pre polyneii		los, in
Food stuffs	In terms of natu ral food- stuff	In terms of dry weight	In terms of natu ral food stuff	In terms of dry neight
	Gms	Gms	$\mathbf{Gms}$	Gms
Beef (Water content 75%) On heart ( ,, 60%)	20	5 2 2 5 2 1 5	20	5 2 0 6-1 2 2 5
Ox heart ( ,, 60%)	$\frac{5}{12}$	$\frac{2}{25}$	5 }6	0 6-1 2
Sheep brain ( , 80%) Fish (Hake) ( ,, 80%)	10	2	10	2
Egg yolk ( ,, 50%)	$\begin{array}{c} 1\overline{0} \\ 3 \\ 25 \end{array}$	$\begin{smallmatrix}1&5\\0&5\end{smallmatrix}$	10 25	0 0 5
Yeast (pressed) (,, 5%) Lentils (,, 12%)	25 15	3	<b>3</b> วี ั	6
Unhusked (,, 12%)	3 75	კ 2ა	75	65
A Husked	5	4 5	10	9

From this table certain interesting emerge, it will be seen, in the first place, that the protective substances are very irregularly distributed, ind, secondly, comparing the antineuritic value of the food-stuffs it will be seen that beef and fish are deficient in protective substances That fish, flesh should be deficient in vitamine is interesting. I recollect that an objection raised to my conclusions in regard to the ethology of epidemic dropsy was that Bengalis eat fish freely, and this food ought to have compensated for the absence of protective bodies in the rice of the diet Cooper's (25) investigations show that fish is most inefficient in this respect Yeast it will be seen is highly efficient as a protective food and should be used in the treatment of this condition. Direct pulse (lentils) and a husked cereal (barley) are equal in anti-neuritic value

In pigeons fed on polished lice both progressive loss of weight and neuritis occur (26) Cooper (27) considers that the substance which prevents loss of weight differs from the substance which prevents neuritis. He has arranged the foods investigated by him into 3 classes—

Class 1 — Food-stuffs inefficient in both capacities, polished lice, beef

Class 2 — Food-stuffs efficient in both capacities, yeast, heart, brain

Class 3 — Food-stuffs efficient in preventing polyneuritis but less efficient in maintaining body-weight Egg yolk, barley, lentils

Vedder (28) has shown that the anti-neuritic substance is lacking in omions and cotton seed oil, and adds that it appears quite possible that many other articles of tood are similarly deficient

In regard to senivy it is important to note that the protective substances are only found in fresh food, dired material being completely vilueless Axel Holst and Frolich (29) showed that tresh potatoes, apples, lime juice, carrots, cubbige, and leaves of lion's tooth (leontodon taraxacum) contained protective sub-tances against senivy is interesting to note that Funk(30) points out that lime juice although poor in Vitamine yet the latter appears more stable than that in vegetables Again Furst in Holst's laboratory has should that the sem vy protective substance develops when grains germinate and disappear again on He suggested that on boundship a store of dried grain should be kept, and on long voyages where no fresh vegetables were available the gruns might be allowed to germinate and then added to the diet with a view to preventing Funk(31) has demonstrated the presence of beri-berr vitamine in milk Prolich(32) has shown that pastem sed milk (heated at 70°('.) prevents sensity, but milk heated for 10 minutes at 600 loses its protective power entirely. Funk(33) states in regard to milk, "this vast amount of evidence suggests that the real physiological difference between the inw and boiled

milk is not in the destruction of enzymes, antibodies and changes in proteins, but in the content of vitamine" and, also, "the reaction of the milk, the natural content of the vitamines in cow's milk, which of course depends entirely on the content of vitamines in the cow's tood, are further factors of which we do not know the importance"

Andrews (34) concludes that infantile berrberr is due to the deficiency of vitamine in the mother's milk, and this in its turn is due to the absence of protective substance in the woman's diet. Hence the necessity of attending to the diet of women of the poorer classes in pregnancy

EFFECT OF VARIOUS CONDITIONS ON THE PROTECTIVE SUBSTANCES.

From the practical point of view it is important to know the effect of various conditions on these bodies. Some have been referred to incidentally already, but it will be convenient to consider them in more detail.

- 1 Heat—Gryns (35) had shown that food-stuffs when heated to 120°C lose their protective power as regard berr-berr. Cabbage heated to 110°C loses completely its antiscorbutic power, and the junce of the cabbage was inactivated at 60°C to 70°C showing, is Avel Holst (36) points out, that the antiscorbutic capacity is much more "thermo-labile" if the junce is pressed out of the leaves than when it is inclosed in the intact cells. Lime junce vitamine is not destroyed after boiling for one hour, as Frolich has shown milk loses completely its protective power against scurvy by heating at 98°C for 10 minutes. Hence the importance of not heating these articles more than is necessary.
- 2 Drying—As we have seen drying completely removes the sourcy vitamine. Thus an explination is afforded of outbreaks of scurvy and ship berr-berr on vessels during long voyages on which only dried food-tuffs are available. Hence it will be seen that foods which have been stored for prolonged periods should be avoided as articles of diet.
- Reaction Si Almioth Wright and Prof Torup of Christiania consider that seurvy is an Azel Holst's work shows that this view is no longer tenable. It is interesting to note in this connection the effect of acids on the protective bodies of scurvy As already stated lime juice vitamine stands boiling for I hom Ruspherry Juice (Dr Furst) and Sorrel Juice Reichboin-Kjennerud) are both and strongly antiscorbatic and a temper stone of 110° C for 1 hour without affecting the sem vy protective substances. By the addition of and to cabbage and hon's tooth juice the thermo-stability of the protective bodies is By boiling cibbage in 05 per cent. citiic acid water a strong extract of antiscorbutic substance is obtained (37) Furst tried whether

food which produced an alkaline ash had any antiscorbutic property He found it had none

From what has been mentioned above it will be evident that the final value of food-stuffs depend to a considerable extent on methods of cooking, storage, washing, etc., as the protective substances may be destroyed or removed by any of these means, just as they are removed in the case of lice by the mechanical operation of This important fact is probably not sufficiently appreciated

EFFECT OF ABSENCE OF PROTECTIVE SUBSTANCE FROM THE FOOD ON OTHER DISEASES

From the foregoing it will be obvious that recent research on this subject has opened up an entirely new line of country, the subject is of great and far reaching importance realise that the absence of certain substances, which are present in food in very minute quantities, is capable of producing profound pathological lesions we can appreciate the need of carefully studying these substances These bodies cannot be regarded merely as foods but their rôle is rather that of "activators" or hormones (38) know the extremely important played by the latter in the internal secretions of the various organs of the body The question arises will the absence of these substances from the diet piedispose to disease, or diminish the resisting power of the body after infection, and so increase the severity of the malady elation it is interesting to note that Bassett Smith (39) employs yeast in 2 diachin doses twice daily in the treatment of the neuritis of Malta He states

"It may be that in this fever the neuritis is not directly due to the toxic action of the M melitensis on the nerve cells as was believed, but that there is a drain on the nerve tissue to produce the necessary vitamine required in health 'Yeast,' which ap parently contains more than one 'vitamine' may prevent this loss in the nerve tissue it also appears to have a beneficial effect in increasing the number of polymorpho-nuclear cells"

The explanation of the beneficial action of yeast in various diseases may be found in this tact, as our knowledge of this subject increases it may be shown that unsatisfactory results in the treatment of many chronic diseases may be materially improved by the supply of the appro-

puate vitamine

It is well-known that a form of glycosuria (diabetes) is very prevalent particularly amongst the more intelligent Hindus (rice-eating), and the diet of this class is low in "vitamine" It may be that future research will show us that this disease is dependent on the absence from the diet of an appropriate "activator" or hormone as a result of which the machinery of the metabolism is interfered with The reported beneficial effect of yeast in the treatment of diabetes is interesting in this respect The suggestion may possibly give a lead in the working out of this complex problem.

Funk considers that rickets may be induced by the deficiency of protective substances and the subject is one requiring further investigation

The etiology of a disease, apparently connected with defects in diet, which is at times prevalent in India, especially in the Central Provinces, Lathyrism, awaits a scientific elucidation

A SURVEY OF THE ANTI-NEURITIC AND ANTI-SCORBUILC VALUES OF FOOD-STUFFS NECESSARY

From what has been mentioned in this paper it will be at once become apparent that in respect of every diet it is necessary to ask what is its vitamine value, and this question assumes greater importance in India with its great lice-eating communities as their vitamine margin is always very limited and they are liable, in certain cucumstances, particularly adverse economic conditions, to become unable to meet by their food the demands of their system for these substances, and, consequently, the needs of the body must be met from the tissues of the individual himself with the result that he soon manifests signs of one or other of the deficiency diseases, and short of this he may be predisposed to other If a list were available showing the anti-neuritic and antiscorbutic values of all the va ious food-stuffs, it would be possible to constirct diets which would be free from danger in As Vedder points out (40) berr-berr may develop in men , who are receiving what is supposed to be a balanced ration, provided that none of the components of that ration contains the neuritis preventing substance is a matter of very considerable importance to those who are responsible for the rationing of large bodies of individuals, prisoners, soldiers,

The necessity for continuous research on this important problem in medicine is obvious

E D W GREIG

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# Connespondence

#### INFELIX AGER

To the Editor of "THE INDIAN MEDICAL GAZETTE"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In your leader entitled 'Infelix Opportunitate," which appeared in your issue for Dec 1912, you refer to state ments made by Prof W J Simpson and myself concerning the scheme evolved by the Education Dept of the Governing the Sanitary Services throughout India" I suggest, and I am authorized by Prof Simpson to state he agrees with me, that now the benefit of your opinion has been afforded your renders, the opportunity would be felicitous for your enabling them to judge for themselves what these statements really were, by publishing our letter as it appeared in "The Times" of the 14th Oct In case this may not be available in your office, I enclose a copy

Yours faithfully.

W G KING.

COLONEL, IMS (1et)

(Copy of letter published in "The Times," London, 14 10 12)

INDIAN SANITARY REFORMS To the Editor of "THE TIMES '

Sir,—According to the most recent statistics available, the mortality rates of British and Indian soldiers and Indian convicts respectively are 466, 489 and 17 per thousand. These rates exhibit an enormous saving of life when compared with those ascertained in the sixties, namely, 69, 44 and 96 per thousand. At the same period the mortality of the civil population was believed to range from 37 to 81 per mille, but at the present time, although in localities a lower minimum is frequently found, the maximum is a lower minimum is frequently found, the maximum is at times exceeded. In 1910 the rate for all India was 33 20 per mille, or more than double that in England and Wales for the decade ending that year. The results in the British and Indian armies and gaols are universal and systematically applied results in the British and Indian armies and gaols are undoubtedly due to universal and systematically applied similation, whilst with the civil population such measures as have been attempted have been local, partial, and spasmodic, and have therefore failed to secure widely marked results. There were 16 million deaths from fovers" (chiefly malarial), plague and cholera from 1908 to 1911 inclusive to 1911 inclusive

to 1911 inclusive

It is obvious that the first step towards a successful campaign against preventable sickness and death must be the organization of an effectively administered executive sanitary service. Your summary of the 19th ult showed that (after representations stretching from 1863 to recent days by various authorities including former Secretaries of State), the Government of India are about to move in the matter. Their resolution on the subject allows it to be believed that the proposals represent no mere stop gap, but "a scheme for the general re organization of the sanitary service throughout India." How far is this comprehensive condition likely to be fulfilled?

Under the proposed scheme the Sanitary Commissioner with the Government of India, instead of becoming, as a minimum requirement, the representative head of the sanitary service, from the position of independence insisted

tary service, from the position of independence insisted

upon by the Secretary of State in 1904 is, by a retrograde upon by the Secretary of State in 1904 is, by a retrograde step, thrust into a subordinate position under the head of the medical service. This is not a temporary measure pending further elaboration of the scheme. In defence, it is pleaded in the resolution that the medical cannot be divoiced from the sanitary services in India. Yet since the appointment in 1868 of Sanitary Commissioners for the Presidencies, wherever in India (except for a short period in one Presidency) sanitation has been of sufficient importance to demand a separate Sanitary. Commissioner the ance to demand a separate Sanitary Commissioner the principle of placing that officer directly under the Government he serves, "and no other authority," has been accepted by the Secretary of State, and has been put in practice by the Government of India's own orders

Research, in sanitary interests, has been removed from the hands of the Sanitary Commissioner on the petty excuse that the younger bacteriologists desire a closer connection with hospitals, and also because the increasing work and arduous life of Sanitary Commissioners under local Govern ments do not ud recruiting for such posts. Yet the first named obstacle can be met by the issue of departmental orders in the provinces where difficulty has been experienced and the second by more generous terms being offered to men who devote their lives to sanitation. In effect the Sanitary Commissioner with the Government of India has been reduced in this organization scheme to the condition of a technical assistant under an officer already buildened with the sufficiently important demands of curative medicine. The whole arrangement is as incongruous as if the medical officer of the Local Government Board of England were required to administer the hospitals and medical colleges of Great Bitain, and he in his turn wis controlled in similarly matters by a medical consultant. With the subordina trily matters by a medical consultant. With the subordination of the Sanitally Commissionels a scheme of reorganization is proposed. Eight additional Deputy Sanitary Commissionels are to be allowed, with the result—if area be considered—of providing three whole time Government inspecting sanitally officers for the equivalent of Great Britain and Ireland. Their pay, judging by existing standards in India is insufficient to attract many whom it is considered. ards in India, is insufficient to attiact men who will regard the appointment otherwise than as a matter of temporary expediency The same may be said of the few health officers who will be appointed to major municipalities. Men of the class of chief sanitary inspectors are to be appointed in lieu of health officers to second class municipalities, and the employment of specially—trained sanitary inspectors

This is the total scheme declared to be a "general re organization of the sanitary services throughout India" It deals with about 17 millions (or 7 per cent of the total population of India) inhabiting 717 spots in an area of 1,152,894 square miles, and leaves the samitary fate of 227 millions uncured for The scheme gives no real executive sanitary service to India, and will have no influence in checking or preventing the ravages of cholera, plague or malaria, or other of the preventable diseases of India In a country where the people have not at birth an expectation of more than 22 35 years of life or 19 6 years less than possessed by the males of Great Britain, the deficiencies of the scheme are to be made up for by a proposal to educate the people This policy, with its sequestration of available funds, is what might have been expected, since among other extraordinary arrangements, similation is placed under the Educational Department of India In the absence of concomitant sani tary mersures, money must be wasted in educating a people who have no better expectation of life as a result of existing

ınsınıtary environment

W G KING, COL, IMS (let),

For merly Santary Commissioner with the Government of Madras

W J SIMPSON,

Professor of Hygrene, King's College, for merly Health Officer for Calcutta

To oblige Col King and Dr Simpson we publish this letter to "The Times" in full, although it was freely quoted in all the Indian newspapers. We still think that the attack on the Government of India was untimely in that it came at a time when it seemed as it a real advance was really going to be made —ED, I M G]

# THE NASTIN TREATMENT OF LEPROSY To the Editor of "THE INDIAN MEDICAL GAZETTE"

Six,—Under "Current Topics" in your Feb number (1913), you review the report on the treatment of Leprosy by Nastin submitted in July 1912, to the Government of Bengal, by the Inspector General of Civil Hospitals
Will you kindly allow me to make the following brief criticism of Major Megaw's trial of Nastin and his conclu

sions as to its value which form the chief matter of the above report

(1) Major Megan tried Nastin in only 14 cases. This is a

small number on which to bise conclusions

(2) The wearge length of treatment under his own observation was 4 months. The maximum was 5 months. This is Thus is surely a brief trait to give to a remedy for a very chronic disease which is known to be slow and variable in its action

(3) On this trial of Nistin in 14 cases for in a set age period of 4 months an unfavourable pronouncement has been male on a method of treatment which has been much noto exten sively tried elsewhere and favourably reported on by most of those who have tried it

One of the most extensive trials in India has been made in the Solhet Leper Asylum, where Nastin has been in use for

I am about to submit the official report for this asylum on the results of Nastin for 1912 with conclusions based on

31 years' use

45 cases treated for an average period of 131 months including

26 cases treated for over one year and 5 cases treated for over two vears

et two years. As regards results. — 8 cases have been "cared" so far as to lose all symptoms which cause inconvenience and to be able to resume their ordinary work and occupations

13 have been greatly improved 10 have been considerably improved 12 have been appreciably improved

Only 4 have got worse and 1 remained stationary. I have now used Nastin for two years in the Sylhet Asylum, and from my experience I should say that for a fair trial in most cases at least a year's treatment is necessary, and in many cases treatment must be continued for 3 or more years. I therefore ask your readers to await the publication of the Sylhet report for 912 and not to condemn Nastin on Major Megaw's 4 months' trials even though his conclusions have been embodied in a report to Government by the Inspector General of Civil Hospitals of Bengal

Yours, etc.,

L B SCOTT, BA, MD, DPH, CAPT, IMS

### THERAPEUTIC NOTICES

THE NEW SCLERECTOME

By M. Percy C Budsley M.A. M.B., B.C. Demonstrated at the Ophthalmological Society London, July 10th 1912 and at the Ophthalmologual Congress, Oxford, July 19th, 1912

Messis Down Bios will reset the Keratome blade at any time, exactly as any other Keintome is reset

# 'TABLOID' BRAND ADJUSTABLE HEAD DRESSING

Everyone who has had to apply it knows the disadvantages of the ordin ry roller bind ize as a means of fixing diessings on a head wound. It is difficult to put on and difficult to keep in position. Of special interest and value, therefore is the 'Tibloid' adjust ble head dressing, introduced by Messia Burroughs, Welkome & Co, which promises to abolish all troubler connected with bandaging the head. It consists of a can to fit ever the head with should be such as consists of a cap to fit over the head with a length of bandinge attached for fixing the cap. A pad of double cyande gauze is supplied along with the head dressing. This is applied to the wound (previously washed or otherwise treated), the cap is slipped over the head, the banding portion passed round the back of the head, across the fore head, and but to the statutum nearly where the forestead and but to the statutum nearly where the forestead and back to the statutum nearly sheets the forestead and back to the statutum nearly sheets to forestead and back to the statutum nearly sheets to forestead and back to the statutum nearly sheets to forestead and back to the statutum nearly sheets. portion passed round the back of the head, across the fore head and back to the striting point—where it is fastened with a safety pin—and the thing is done. The whole operation is exceedingly simple and the result is excellent. The 'Tibloid' head diessing does not slip or readily become displaced and it causes the patient little or no inconvenience or discomfort. For first and or field use nothing more admirable could be convenient. muable could be conceived

# Service Notes

### CRIMEA AND MUTINY VETERANS

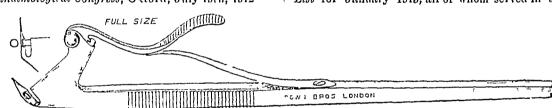
THE names of officers who served in the Crimea and in the Muting the now distinguished in the monthly Army List, by the letters C and M prefixed to their names The British Medical Journal of 8th Februay 1913, contains a list of the medical officers in all thirty six who are thus distinguished Thuteen of them are officers of the I MS, all of whom served in the Mutiny, one, Surgeon Major R Bousterd, in the Cumer riso

The thirteen who belonged to the I M S are —

Bengal J Friewerther, J H Loch, C Plauck, Sir James
Thornton, T S Verle and G A Watson

Madras, G Bidie, Sir C Colvin Smith, W A Smith
Wrine S J Wyndowe

Bombay R Bousterd, C Joynt, E Secton
One of these officers I'S Verle, died on 1st December 1912
In addition, however, to the thriteen enumerated above, at least eleven other officers of the I M S are still shown as living in the list of retried officers in the Indian Army List for January 1913, all of whom served in the Mutiny,



This Instrument consists of two parts

A unrrow bladed Konatome, with chole drilled through a the blade

A punch attached to the handle of the Keiatome (workh

A punch attached to the handle of the Keratome (worked with a lever in I ratcher) which descents into the hole. A conjunctival flap is turned down to the corner and drawn over the corner in the usual way. The Keratome blade is inserted through the sclera into the interior chamber, and pushed forward till the piece of sclera in front of the cut comes under the punch. The lever is then pressed by the hist finger and the punch removes a circular piece cut of the solding which remains in the hole of the Ken trome blade and is withdrawn with that blide. A peripheral nidectomy can now be done if desired (and in my opinion should always be done) through the Keratome opening. The conjunctival flap done) through the Ker tome opening the soler ctome was then replaced. In the culter models the soler ctome was the major than bunch. The present instru ment is a very great improvement on the former

It is very much eisier to manipulate in fact it is as easy as an ordinary Keratome. When the Keratome has been inserted, the punch cuts down on to a solid fixed base, there fore the trephine cannot wound any other tissue than that

intended

In secondary glaucoma, due to notes this double purpose instrument, has been especially useful. In all cases, its use

shortens very much the length of the operation

Objections were at first raised to the supposed difficulty in resharpening the scherectome. Now, after prolonged experience I can state that the Keratome blade remains sharp for a great number of operations, and the cutting life of the punch is almost limitless, supposing ordinary surgical care to be exercised

one, W H Haills in the Climea also His was services are duly recorded at the end of the Army List, those of the duly recorded at the end of the Army List, those of the others we now not so having either dropped out, or never having been entered. Then names and services are as follows, the dites in brackets being those of their first commissions. Harris and McLeod belonged to the Madras service, the others were Bengil men. Three, however, Cildwell, Hayes and McLeod, served in minor operations only, not having taken part in any of the more important. Carter, F., Surgeon Major (4 August 1855), Muting, with Punjub movible column under Big Genl Nicholson, 18 May to 12 August 1857, medal

Caidwell, William Smith Surgeon Major (29 January 1877), formerly William Caldwell Smith, Mutiny in Sonthal and Bih ir districts, and with Robilkand Field Force from June 1858 to August 1859

Christison. Sin Alexander

June 1858 to August 1859

Christison, Sin Alexander, Surgeon General (20 October 1851), Matiny, with Gwilion Civalry from 15 May to 2 July 1857 action with Vasir abad rebels at Sasir, near Agra, with Meade's Horse after taking of Gwalior by Sir Hugh Rose, medal with clasp Also Burma, 1852 53, medal

DeRenzy Sin Annestey C C, Surgeon General (20 July 1851), Mutiny Nasirabad, Siege of Lucknow, March 1878, medid with clasp Also North East Frontier, Nagr Expedition, 1879 50 C B, K C B, 26 June 1902

Grant, N J, Surgeon Major (18 December 1853), Mutiny, with Southal Field Force dangerously wounded at Rohm, June 1857 Also North-West Frontier, 1854 55, against Akakhel and Bisikhel Afridis, and with Field Force at Annexation of Oudh, 1856

Harris, W H, Deputy Surgeon General (13 Februar) 1853), Crimea, 1855, siege and fall of Sebastopol, attack on

Reden, 18 June, and battle of Tchemaya, medal with clasp, and lunkish medal Mutiny, operations before Kulpi capture of Lucknow, surrender of forts of Ahmiti and

capture of Lucknow, surrender of forts of Ahmiti and Thinkupur, and subsequent operations in Oudh medal Hayes, W. H., Surgeon Mijor, (4 August 1875), Mutiny, Kolinsing wounded near Chirbasa, 14 January 1888

Macleod, A. C., Surgeon Major (8 March 1841), Mutiny Mactier W. F., Surgeon Mijor (3 December 1844), Mutiny siege of Delin mentioned in despitches G. O. of 5 November 1857, and London Gazette, 24 November and 15 December 1857, and London Gazette, 24 November and 15 December 1857, and London Gazette, 24 November and 15 December 1857, and London Gazette, 25 November and 1857 (1856). 1877, medal with clasp Also Suilej campaign, 1845 46 with 42nd N I actions of Mudki, Aliwal, and Sebiaon, medal

42nd N I actions of Mudki, Aliwal, and Sebiaon, medal with two clasps, and Punjib campaign, 1848 49 actions of Ramnagir Sadultipui, and Chinawida medal with clasp Paske, C T Deputy Surgeon General (26 August 1852), Mutiny, actions of Azamgath, Ghagha, Kadwa, and Chinda, medal Also Burma, 1853 medal, and Bhurm, 1865, clasp Sutherland, P IF, Deputy Surgeon General (6 May 1854), Mutiny, with Peshawai Light Hoise and with Muriay's Jat Horse, medal

Mutiny, with Peshawa Light 110180 and with mutiny's Jat Horse, medal
Within the decade preceding the Crimean War and the Mutiny, two great wars, as fiercely contested, and as important in their consequences were found in India the Sutley comparing or first Sikh war of 1845-46, and the Punjab comparing or second Sikh war of 1848-19. Two officers of the IMS are still living who took put in these campaigns Machier's war services are given above. The other is Surgeon Muor Henry Benjamin Hinton, the doyen of the service His war services are given those The other is Surgeon Major Henry Benjamin Hinton, the down of the service His war services include Gwalior, 1843, Sutley, 1845 4b actions of Badawil, Alival, and Sobiaon, medal with class, Panjab, 1848 49, and China, 1858 60 He appears not to have served in the Mutiny

No medical officer smirres who served in the first Afghan wi, 1839-842. Hinton wis then in India, but his regiment, the 65th N. I. took no part in the war, being stationed first

at Duapui, and afterwards in Arakan

Surgeon Major H B Hinton—The note on this officer,

given below, appeared in the Standard of 31st Junuary 1913

given below, appened in the Standard of 31st Jinuary 1913 Dr. Hinton is the senior, and by some years the oblest officer on the retried list of the IMS. The next seniority are Surgeon Major. Alexander Charles. Macleod, who entered the Madras Service on 8th March 1841, and William Fullerton Mictier, who was born on 1st October 1822, and entered the Bengal Service on 3rd December 1844. Henry Benjamin Hinton was born on 7th Muich 1813, so if he is still living, will have completed his century before these lines are published. After taking the MRCS in 1835 he entered the Bengal Medical Service as Asst Surgeon on 14th January 1839, became Surgeon on 31st December 1852 and Surgeon Major on 14th January 1859 retiring in 7th Muich 1868. His was services include the Gwalior war, in 1843, the first Sikh war, in 1845 46, when he was present at the actions of Bidiwal, Aliwal and Sabiaon, the second Sikh war in 1848 49, and the second Chura war, in 1858 60

In 1947, the first view wil, in 1849 40, when he was present at the actions of Bidiwal, Aliwal and Sabiaon, the second Sikh wai in 1848 49, and the second China wai, in 1858 60. He was actually serving in India at the time of the first Afghan wai, though he was not himself sent to Afghanistan. The Governor General during his stay in South Australia has pind a visit to Surgeon Major Hinton, formerly of the Honorable East India Company's Service, who will be a him died years old in a few months' time. Major Hinton is at present in a private nuising home in North Adelaide, suffering from the effects of a severe accident which he met with several months ago. He was born two years before the battle of Waterloo, reads without glasses and possesses a wonderful memory. His active military service dates back to the Mahatta war of 1843, and he later six service in the second Sikh wait, Muthin, and China Lord Denman enjoyed a most interesting chat with the gallant old major."

This will be the third I M von officer to have reached 100 years, who has died in the past 15 years.

SURGEON JOHN MILFORD BARNETT, Bombay Medical Service, retired, died at Bechill on ser on 24th Juniary 1913, aged 82 He was born on 28th Sentember 1820 and 1913, Service, retired, died at Berhill on ser on 24th Jinnary 1913, aged \$2. He was born on 28th September 1830, educated at Edinburgh University and it Frigity College Dublin, took the diploma of M RCS, and the degree of M D. Edin burgh, in \$52, and entered the I M S., as Asst Surgeon on 20th April 1853 becoming Surgeon on 20th April 1865, and retiring with only fifteen years service on 14th August 1868. He served in the Persian way of 1855 57, taking part in the bardment and capture of Mahammara, also in the Kathia way field force in 1860.

LIFUTENANT COLONEL JOSHUA CHAYTOR WHITE, of the Bengri Medical Service retired on 22nd December 1912. He was born on 3 st October 1864 educated at the Universities of Edinburgh Bonn, and Heidelberg took the M B and C M at Edinburgh in 1887, the M D, in 193, and the DP H at Cumbridge in 1901 and entered the I M S as September 1991, and Lieutenant Colonel in 30th September 1999. He served in the relief of Chitral in 1895, and received

the medal for that war, with a clasp He was in Civil em ployment in the United Provinces and for some years past had held the post of Sanitary Commissioner

MAJOR HERBERT JOSEPH RICHARD TWIGG, of the Indian Medical Service retirca on 14th January 1913. He was born on 14th Labrary 1870, took the M.B. B.C.B., at Cambridge on 11th Bold of 1870, took the MB BCB, at Cumbridge in 1897 and entered the LM 5 as Licuten int on 27th July 1894, becoming Cuptain on 27th July 1901, and Major on 27th July 910. The Army List issigns him no war service He was posted to the Western Command on coming to India, and was in civil employment in Bombay, holding the appointment of Superintendent of Yerrowda Central Prison, but had been on sick leave since 13th January 1912.

THE death of Surgeon General Colvin, I MS, Madias, another Mutiny Veteran, is reported on 2nd March 1913

THE Public Services Commission has asked for a combined note by the I MS, on the questions of its internal economy and reform. This is satisfactory, is a somewhat meticulous objection was taken to any combined action on the part of I M S officers in view of the King's Regulations

REWARDS-Good Conduct and Mentorious Service -A list is assued as an annexure to this order of India Army Orders, dated 20th January 1914 -

(i) non commissioned officers and men of the Indian Army and non commissioned officers of the Supply and Transport Corps,

(11) non commissioned officers and men of the Royal and Indi in Artillery,

(m) Sub Assistant Surgeons of the Indian Subordinate Medical Department,

(v) miscellaneous,

(10) miscenaneous, Who have been granted medals for meritorious service, with minuty, and for long service and good conduct with or without gratuity for the year ending 31st March 1913, under the provisions of Army Regulations, India, Volume I,

under the provisions of Army Regulations, India, Volume I, paragraphs 993 et seq.

Medit inscribed for Meritorious Service," with annuity No 1214, 1st Oliss Sub Assistant Surgeon M. Amirta nad in Pillar Madias Establishment, vice No 1206 1st Class Sub Assistant Surgeon J. E. D'Cruiz, Madias Establishment, promoted, with effect from the 15th September 1911.

No 086, 1st Oliss Sub Assistant Surgeon Ihsan Ali, Bengal Establishment, vice No 048 1st Class Sub Assistant Surgeon Thakur Singh, Bengal Establishment, promoted, with effect from the 15th October 1911.

No 1220. 1st Class Sub Assistant Surgeon Muhammad

No 1220, 1st Class 5nb Assistant Surgeon Muhammad Fikhi nd Din 5ahib, Madras Establishment, vice No 1208 lst Class 5nb Assistant Surgeon A Govind sa Pillu, Madras Establishment, vice No 1208 Establishment, deceased, with effect from the 3rd November

1911
No 645 1st Class Sub Assistant Surgeon IIah Bikhsh,
Bengal Establishment, vice No 653 1st Class Sub Assistant
Surgeon Kishin Child Bengal Establishment, promoted,
with effect from the 20th December 1911
No 675, 1st Class Sub Assistant Surgeon Rahad din
Khin, Bengal Establishment, vice No 602 1st Class Sub
Assistant Surgeon Sundir Singh, Bengal Establishment,
seconded for civil employment, with effect from the 23rd ervil employment, with effect from the 23rd December 1911

No 710 1st Class Sub Assistant Surgeon Jumman Khan,

No 710 1st Class Sub Assistant Surgeon Jumman Khan, Bengal Establishment, vice No 387, 1st Class Sub Assistant Surgeon Nain Singh Bengal Establishment, promoted, with effect from the 25th December 1911
No 701, 1st Class Sub Assistant Surgeon Shankardas, Bengal Establishment, vice No 625, 1st Class Sub Assistant Surgeon Pandit Nathu Ram Bengal Establishment, promoted with effect from the 15th January 1912
Bengal Establishment vice No 626, 1st Class Sub Assistant Surgeon Pandit Shankard Surgeon Nabi Ahmad, Surgeon Pandit Shankard Dis Bengal Establishment, promoted with effect from the 16th January 1912

with effect from the 16th January 1912

No 163 1st Class Sub Assistant Surgeon Krishna Harr, Surgeon Gopal Narryan Bombay Establishment, promoted, with effect from the 13th February 1912

with effect from the 13th February 1912
No 695, 1st Class Sub Assistant Surgeon Nabi Abmed No 695, 1st Class Sub Assistant Surgeon Gauri Shankai Bengal Establishment vice No 641, 1st Class Sub Assistant Surgeon Gauri Shankai Bengal Establishment, No 702 1st Class Sub Assistant Surgeon Pais Ram, Surgeon Halin Bakhah Bengal Establishment, vice No 645 1st Class Sub Assistant with effect from the 10th March 1912
No 707, 1st Class Sub Assistant Surgeon Mahendu Lal Garg Bengal Establishment, vice No 633, 1st Class Sub Assistant Assistant Surgeon Shurakhan Lal, Bengal Establishment, promoted, with effect from the 18th April 1912

No 709, 1st Class Sub Assistant Surgeon Asad Alı, Bengal Establishment, vice No 654, 1st Class Sub Assistant Surgeon Sindhe Khan, Bengal Establishment, promoted, with effect from the 5th May 1912

No 165, 1st Class Sub Assistant Surgeon Shaikh Milan Shaikh Rahim, Bombay Establishment, vice No 149 1st Class Sub Assistant Surgeon Dhondi Nagooji Vizilae, Bombay Establishment, promoted, with effect from the 6th May 1912

No 692 1st Class Sub Assistant Surgeon Nanakchand Anand, Bengal Establishment vice 1st Class Sub Assistant Surgeon Muzzan Husain, Bengal Establishment, pro

tant Surgeon Muzzan Huszin, Bengal Establishment, promoted, with effect from the 10th May 1912

No 720, 1st Class Sub Assistant Surgeon Kh Bakhsh, Bengal Establishment, vice 1st Class Sub Assistant Surgeon Pars Ram, Bengal Establishment, deceased, with effect from the 1st August 1912

No 724, 1st Class Sub Assistant Surgeon Debi Dass, Bengal Establishment, vice No 669, 1st Class Sub Assistant Surgeon Haribans Lal Bengal Establishment, promoted, with effect from the 2nd August 1912

LIEUTENANI COLONFL W E JENNINGS, MD, CM (Edin), DPH (Dub), IMS, is appointed as a member of the Bombay Medical Council, vice Lieutenant Colonel L F Childe, I M 5, resigned

LIEUTFNANT COLONEL E JENNINGS, I MS. Superinten dent, Central Prison was on study leave from the 1st November 1912 to the 3rd January 1913

Major A T Gagr, IMS, Director, Botanical Survey of India, is granted under Articles 233 and 260 of the Civil Service Regulations, privilege leave for one month and thirty days combined with study leave for twelve months and fullough under Article 308 (b) of the Civil Service Regulations sufficient to make the lotal period up to twenty months, with effect from the 12th March 1913, or the subsequent date on which he may avail himself of it

The Curator will act as Director for Major Gage

THE services of Captain H H G Knapp, IMS, Superintendent of the Central Jail at Rangoon, are placed permanently at the disposal of the Government of Burma, with effect from the 21st February 1910 for employment in the Jail Department

LIEUTENANT COLON EL JAMES JOHN PRATT, Indian Medical Service, Bengal has been permitted by the Most Hon ble the Secretary of State for India to retire from the service, subject to His Majesty's approval, with effect from the 27th December 1912

Lieutenant Colonel Pratt has been appointed Lecturer on Tropical Diseases at the Westminster Hospital, London

"In the resolution of the Government of India in the Finance Department, No 124, dated the 12th May 1876, Assay Masters were permitted to retain any fees received by them for assays made for private persons, after crediting 4 per cent to Government for the use of Government laboratories, cent to Government for the use of Government laboratories, chemicals, etc., and assigning to the members of their establishment who assist in such private assays such portion of the fees as they think fit. With the approval of the Secretary of State for India, the Governor General in Council is now pleased to direct that in future this private assay work shall form part of the official duties of Assay Masters and their the fees against the fees against for the government. staff and that the fees received for this work shall be credited to Government

The Governor General in Council recognises that in the case of officers already employed in the Department the withdrawal of the fees without compensation would be inequitable, and has therefore allowances shall be given to them

3 The conditions under which assay work will in future be undertaken for private persons are laid down in the attached rules"

So the Gazette of India Cur bono? Another of the pin pricks which is unfortunately rendering the I M S unpopu lar in the schools In this case it has already been decided not to recruit for the Mint from the I M S

CAPTAIN D G R S BAKER, IMS, to be specialist in Ophthalmology, 4th (Quetta) Division, with effect from 1st January 1913

MAJOR C W H WHITESTONE, RAMC, to be Deputy Assistant Director of Medical Services (Mobilization), 3rd (Lahore) Division with effect from 31st December 1912, wice Major J Gould, IMS, transferred

CAPTAIN J W HOUSTON, RAMC, to be Deputy Assistant Director of Medical Services (Sanitary), 1st (Peshawar) Division, with effect from 16th December 1912

LIEUTENANT T H BONNAR, IS MD, Civil Surgeon, on leave, is granted finlough for six months, under paragraph 435 of the Army Regulations, India, Volume I and Note 2 to Article 606 of the Civil Service Regulations, in extension of the leave granted him under Assam Administration Notification No 5444M, dated the 14th December 1912

CAPTAIN J J ROBB, I M S, was granted 111 months' leave

CAPTAIN W L FORSYTH, IMS, on 27th January joined the Madras jail department for training

CAPTAIN F NORMAN WHITE, IMS, of the Bacteriological Department and a member of the Plague Research Commission, acts as Sanitary Secretary to the D G I M S, rice Major McKendrick, IMS, going on leave

COLONEL R H FIRTH, RAMC, was appointed A D M S, Peshawar, from 1st December, vice Colonel S C Robinson (retired)

CAPTAIN W S McGILLIVRAY, IMS, was appointed specialist in Otology, &c, in Meetut Division from 6th November 1912

MAJOR G Y C HUNTER, IMS, who was appointed to be Superintendent of the Buxar Central Jail in Notifica tion No 7414M, dated the 30th December 1912, has been granted by His Majesty's Secretary of State for India a further extension of leave for six months

THE following postings and transfers are ordered in the Civil Medical Department, Burma —
Major J Good, IMS, on return from leave, to officiate as Ophthalmic Surgeon, General Hospital, Rangoon, in place of Captain E A Walker, IMS, transferred Captain E A Walker, IMS, to be Civil Surgeon, Merktila, in place of Major F V O Beit, IMS, transferred Major F V O Beit, IMS, to be Civil Surgeon, Bassein, in place of Captain E T Harris, IMS, transferred Captain E T Harris IMS, to be Civil Surgeon, Toungoo, in place of Senior Military Assistant Surgeon and Honorary Captain J F Curran, transferred

ON being relieved by temporary fourth grade Sub Assistant Surgeon Lolit Mohan De, second grade Sub Assistant Surgeon Didaruddin Ahmed, in charge of the South Salmara Dispensary in the district of Goalpara is deputed for duty under Captain F P Mackie, IMS, Kala azar Research Officer, Assam

C A BENTLEY, Special Officer on Malaria Research, Bengal, was allowed privilege leave for one month, under Article 260, Civil Service Regulations, with effect from the 15th February 1913

MAJOR A B FRY, IMS, Special Deputy Sanitary Commissioner for Malaria Research in Bengal, is allowed privilege leave combined with furlough for seven months and five days, viz, privilege leave for two months and twelve days under Article 260 of the Civil Service Regulations, and furlough for the remaining period under Article 308 (b) of those Regulations, with effect from the 17th March 1913

CAPTAIN J L LUNHAM, MB, BCh (RUI), IMS, 19 granted, from the date of relief, such privilege leave of absence as may be due to him on that date in combination with study leave for such period as may bring the combined period of absence up to nine months

LIEUTENANT COLONEL J B SMITH, MB, MCh (RUI), DPH (Cant), IVS, has been allowed an extension by two days of the furlough granted to him in Government Notifications No 5990 dated the 10th October 1911, No 6711, dated the 9th October 1912, and No 8738, dated the 17th December 1912

HIS Excellency the Governor in Council is pleased to appoint Military Assistant Surgeon Lionel Scott to do duty as Civil Surgeon, Jalgaon, as a temporary measure, pending further enders. further orders

THE furlough granted to Lieutenant-Colonel L F Child, MB, I MS, in Government Notification No 353, dated the 14th January 1913, is furlough on medical certificate

LIFUTFNANT M D A KURRISHI, I M S, is promoted to be Captain from 24th October 1912

THE retirement of Colonel William Alfred Corkery has effect from the 26th August 1912, and not 25th August 1912, as notified in the London Gazette of the 18th October 1912

The services of Captain H Stott, MB, IMS, are placed at the disposal of the Government of Madras for employment as Surgeon to His Excellency the Governor of Madias

MAJOR S. P JAMFS, M.D., IMS, Secretary to Director General, Indian Medical Service (Sanitary), is transferred to foreign service under the Government of Ceylon for a period of one year, with effect from the 23rd January 1913

Colonel G W P Dennys, I Ms, Inspector General of Civil Hospitals, Central Provinces, is granted privilege leave for 2 months and 10 days and in continuation leave on private affairs for 5 months and 20 days under paragraph 226, Army Regulations, India, Volume II, with effect from the 27th February 1913

LIEUTENANT COLONEL H E BANATVALA, IMS, Civil Suigeon, Amraoti, is appointed to officiate as Inspector General of Civil Hospitals, Central Provinces, during the absence on leave of Colonel G W P Dennys, IMS, or until further orders

LIEUTENANT COLONEL C H JAMES, CIE, FRCS, IMS, Officiating Civil Surgeon, Simla (West), is granted privilege leve for one month, with effect from the 15th January 1913

LIEUTENANT COLONEL H A SMITH, MB, IMS, Civil Surgeon, Simila (East), is appointed to officiate as Civil Surgeon, Simila (West), during the absence on leave of Lieutenant Colonel C H James, CIE, FRCS, IMS, in addition to his own duties addition to his own duties

MAIOR A G MCKENDRICK, MB, IMS, Secretary to the Director General, Indian Medical Service (Sanitary), sub protempore, is granted, with effect from the 24th February 1913, privilege leave for three months and in continuation furlough out of India for one year and six months and study leave for three months

CAPTAIN F N WHITE, M D, I M S is appointed to officinte as Secretary to the Director General, Indian Medical Service (Sanitary), during the absence on leave of Major A G McKendrick, I M S, and until further orders

THE following promotions are made, subject to His Majesty's approval —

LIEUTENANTS TO BE CAPTAINS, IMS, with effect from

Rustam Hoi masji Bharucha
Framroze Jamsetjee Kolapore
Edwaid Galwey Kennedy, M B
Robert Foirester Douglas MacGiegoi, M B
Arthur Lewin Sheppaid, M B
Puil Knighton Gilroy, M B
Joseph Arthur Alexandei Kernahan
Maurice Lionel Coille Ii vine M B
Einest William O'Goi man Kilwan, M B
John Valentine Macdonald, M B
Geoige Lawrence Duncan, W B
Anath Nath Palit, F B C S E
Hubert Alan Hist Robson, M B
Kalyan Kumar Mukeiji Rustam Hormasji Bharncha

LIFUTFNANT COLONEL J M CRAWFORD, IMS, Civil Singeon, Benares, privilege leave, combined with furlough, for a total period of eight months and a half, from the 7th March 1913, or subsequent date

LIFUTENANT-COLONEL H B MEIVILLE, I MS, chief plague officer, United Provinces, to be Civil Surgeon of Bennies, ice Licutement Colonel J M Crawford, I MS, granted

CAPTAIN A CAMPRON, I MS, Officiating Civil Surgeon on completion of his special plague duty at Ballia, to be chief H B Melville, I MS

HIN Excellency the Governor of Bombay Council is pleased to make the following appointments —
Lieutenant Colonel W E Jennings, WD, CM (Edin), DPH, INS, on return to duty, to be Health Officer of the Port of Bombay

Lieutenaut Colonel J Crimmin, VC, CIE DPB, IMS, on relief, to be Piesidency Surgeon, Third District, Bombay, and in medical charge of the Common Pilson, House of Correction and Byculla Schools

CAPTAIN G FOWLER, IMS, civil surgeon, has been granted, by His Majesty's Secretary of State for India, leave on medical certificate for four months, in extension of the combined leave granted him by Order No 578, dated the 14th March 1912

ON return from the combined leave granted him by Orders No 2042, dated the 14th November 1911, No 1379, dated the 20th July 1912, and No 111, dated the 15th January 1913, Major A M Fleming, MB, CM, IMS, civil surgeon, 18 posted to Jubbulpore

ON relief by Major A. M. Fleming, M.B., CM, I.M.S., Captain J. M. A. Maemilian, M.A., M.B., Ch.B., F.R.C.S., M.R.C.S., L.R.C.P., I.M.S., civil surgeon, Jubbulpure, is posted to Amiaoti

We regret to learn of the death from pneumonia on 19th February 1913, of Major F D Browne, I MS, medical officer 112th infantry He took the M B degree of Durham in 1893, entered the service on 26th July 1896, and he served for some time in the Jul department in the Andamans and in Bengal, and was appointed to the 112th infantry in July 1909

LIEUTENANT COLONEL F P MAYNARD, FRCS, IMS and Lieutenant Colonel Henry Smith, Mp, I vs, have been appointed Corresponding Members, to represent India at the XII International Congress of Ophthalmology to be held at St Petersburgh, August 10th to August 15th, 1914 The subjects for discussion will be (1) etiology of trachoma, and (2) the nutrition of the eye

CAPTAIN C F MARR, IMS, is appointed to officiate as medical store keeper to Government, Lahore Cantonment, vice Major A A Gibbs, IMS, proceeding on eight months'

CAPTAIN F S SMITH, IMS, is selected to undergo a course of training in serological work under Lieutenant Colonel W D Sutherland, IMS

CAPTAIN G I DAVYS, IMS, was appointed to be specialist in prevention of disease and in charge of the Brigade Laboratory at Jubbulpore, with effect from 1st February 1913

With the approval of the Secretary of State for India, the Government of India have sanctioned the abolition of the appointment of the Special Sanitary Officer at Army Head quarters (Assistant Director, Medical Services, "Sanitary"), with effect from the 1st December 1912

Major W V Coppinger, I Ms, officiating Second Resident Surgeon, Presidency General Hospital was allowed privilege leave for one month, under article 260 of the Civil Service Regulations, with effect from the 24th February 1913, or the subsequent date on which he may be relieved of his duties

DR RATANSHAW BOMANJEE KHAMBATA, MRCS (Eng), LRCP (Lond), DPH (Cantab), 19 appointed to be Deputy Sanitary Commissioner, Rajshahi Circle, Bengal, with effect, This is one of the two extra appointments as Deputy Sanitary Commissioners sanctioned in accordance with the

THE following IMS officers were granted the Diploma in Public Health (D P H, of the Royal Collegeof Physicians London, on January 30, 1913, viz, Captain H M H Rharucha.

CAPTAIN A WHITMORE, IMS, on return from leave is appointed Police Surgeon and Pathologist, General Hospital, Rangoon, vice Captain N D Sargol going on leave

CAPTAINS T CRUMP, I MS is appointed Civil, Surgeon, of Myaungmya, vice Di L G Fink, on leave

THE staff of the King George Medical College, Lucknow will be a strong one when completed in October next, viz,

Major Selby, FRCS, DGO, IMS, Principal and Professor of Surgery, Major Spanson, MD, MRCP, Professor of Medicine, Licutenant Colonel G. T. Birdwood, MD, Professor of Obstetrics, Major H. J. Wilton, MD. FRCS, DTM, Professor of Pathology, Captain A. E. J. Lister, MD, FRCS, Professor of Physiology, and Sahebzada Sanduzzuffer Khan, MB, Professor of Anatomy

UNDER Articles 233 (1), 260 303 (11) and 308 (b) of the Civil Service Regulations, and Rules 2 and 6 of the Study Leave Rules, privilege leave for two months and six days combined with furlough for one year nine months and 22 days, and study leave for ten months, is granted to Captain T C Rutherfood, I M s, Civil Surgeon, Bilaspur, with effect from the 5th March 1913, or the subsequent date on which he may and harmer if of the wail himself of it

THE following changes in Bengal are due in March and

April —
COLONIL G F A HARRIS OSI, FRCP, IMS, takes 8
months' leave from 1th April
Likutenant Colonil J T Calvert, IMS MB, MRCP,
Pimcipal of the Medical College, Calcutta, takes 8 months'
leave and Lieutenant Colonel Benett Dene, MRCP, IMS,

acts is Principal

MAJOR D McCal, MB, MRCP, acts for Lieutnant
Colonel Deare, as Professor of Materia Medica and as Second

Physician

CAPTAIN SHORTEN, IMS, acts for Major McCay as Pro fessor of Physiology

MAJOR McGILCHRIST, I MS, will be put upon the special duty to inquite into the Pharmacology of the Cinchona products.

THE HON'BLE SURGEON GENERAL SIR C P LUKIS, KOSI, MD, FRCS IMS, Director General Indian Medical Service is granted privilege leave for three months under articles 246 and 260, Civil Service Regulations, combined with leave on private iffairs for four months under pringraph 220 Army Regulations, India, Volume II, with effect from the 10th April 1913

THE services of Captain H C Brown, M B, I M S, Officiat ing Assistant Director Central Research Institute, Kasauli are placed temporarily at the disposal of the Government of the United Provinces

THE following accelerated promotion is made, subject to His Mijesty's approval

Captain to be Major, I MS, with effect from 27th December

1912 -George Fowler

WITH reference to the Notifications quoted in the margin the promotion to the present rank of Major William Lapsley, MB, pub Department Notification No 282, date | the 7th April 1911 lished in Army Department Notifica tion No 65), dated the 5th July 1912, is anted ited from the 28th June 19 2 to the 28th December 1911 This

Army Dep riment Not ficulion No 82', duted the 29th Septem ber 1911

rated promotion

me ins Major Lapsley has got accele

to the 28th December 1911

LIFUTENANT COLONEL CHARLES HARDWICK LOUW MEYER, MD, Indian Medical Service, Bombay, is permitted to retire from the service subject to His Majesty's approval with effect from the 5th March 1913

LIEUTENANT COLONEL JOHN MACFARLANE CADELL, M. L., Indian Medical Service, Bengal is permitted to retire from the service, subject to His Majesty's approval, with effect from the 5th March 1913

LIEUTENANT COLONEL MEYER, entered the service on 31st March 1887 and has been employed chaffy in the Bombay Medical College of which he was Principal

LIEUTENANT COLONEL CADELL entered the service on 1st October 1885 and has been employed mainly as a Civil Surgeon, U P

DR E H HANKIN chemical examiner, government analyst and bicteriologist for the United Provinces and the Central Provinces, is deputed to attend a course of Instruction in configural work in Colombia. tion in serological work in Calcutt i

CAPTAIN V B NESFIFLD, I MS, Officiating Civil Surgeon, Bijnor, to officiate as chemical examiner government analyst and bacteriologist for the United Provinces and the Central Provinces, 1200 Dr E H Hinkin

CAPTAIN A W HOWLETT, I MS Officiating Civil Surgeon of Mussoone, on being relieved, to officiate as Superinten

dent, Central Prison, Baieilly, vice Captain W P. G Williams, I M S

MILITARY ASSISTANT SURGEON E G A MATHEWS IS M D, whose services have been placed at the disposal of this Government to be in charge of the Thomason Civil Engineering college dispensivy, Rootkee

LIEUTENANT COLONEL'S BROWNING SMITH, I'VS, acts as Sanituy Commissioner, Punjab, vice Lieutenant Colonel E Willkinson, FRCS, gone on leave

CAPTAIN N M WILSON I WS, WIS appointed Civil Surgeon of Muzuffergath from 11th February

CAPIAIN H HALLILAY, IMS, joined Lyallpun as Civil Surgeon on 9th February

MAJOR A W TUKE FRCS (I), DPH, IMS, is granted from the 1st March 1913, or the subsequent date of relief, such privilege leave of absence as may be due to him on that date in combination with furlough for such period as may bring the combined period of absence up to nine months

MAJOR R W ANTHONY, MB, CM (Edin) FRCS (E), IMS, is granted from the 25th March 1913, or the subsequent date of relief, such privilege leave of absence as may be due to him on that date in combination with furlough for such period as may bring the combined period of absence up to eight months

HIS Excellency the Governor in Council is pleased to appoint Captain J Smilley, MB IMS on return from leave, to act as Civil Surgeon, Karwar vice Captain J L Lunham, MB, BCh (RUI) IMS, proceeding on leave

HIS Excellency the Governor in Council is pleased to appoint Captum B High im, MB, BS (Lon) I MS, to act as Chemical Analyses to Government at Bombay and Professor of Chemistry, Grant Medical College, Bombay, during the absence on deputation of Major W H Dickinson, MB, BCh (Edin) I MS, or pending further orders

# Motrce.

SCIENTIFIC Articles and Notes of interest to the Profession India are solicited Contributors of Original Articles will in India are solicited receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITORS, The Indian Medical Gazette, c/o Messis Thacker, Spink & Co, Calcutta

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messis Thacker, Spink & Co, Calcutta

Annual Subscriptions to "The Indian Medical Gazette," Rs 12, including postage, in India Rs 14, including postage, abı oad

# BOOKS, REPORTS, &c , RECEIVED -

Heisler's Anatomy Agents, Butterworth & Co, Calcutta
H Voguent's Serium Diagnosis and Syphiha Leppincott Co Agents,
Butterwo the Vo, (all utta
The Prescriber (Vol. VI), 1912
Major McCarrison's Milroy Lectures on Goitre John Bale Sons &
Dunelson Pince 10s 6d
Major E L Munson's The soldier's Loot
N W Poutter Report
Kann th's Beriberi (M D Thesis), Madras
Cimpbell Highet's Chimite of Bangkok (Local Govt, Bangkok)
Ledingham and Arkwight's Carrier Problem Arnold & C, 12s 61

E R Culi gs Treatment after Operation (Hodder & Stoughton &

H frounc)
C M Moullin's Bradshaw Lecture H L Lewis 2s
Allen's Bacterial Diseases of Respiration H & I cwls 6/
Sir G T Buatson's Modern Wound Treatment Livingstone & Co

# LETTERS, COMMUNICATIONS, &c, RECEIVED FROM -

Major Clayton Lane, I vis, Borhampur, Capt Berkeley Hill, I vis Madram, Lt Col D G Crawford, I vis (retd), London, Lt Col Sutherland, I vis Calcutta, Capt Hay Burgess, I vis, Calcutta, Colonel W G King, I vis, London, Lt Col Birdwood, I vis, Lucknow, Major F L Hammani I vis, Waymyo, Major Rutherford, I vis, Bilaspur Col nel P Hehir, I vis, Rangoon, Capt Fraser, I vis Madras Capt Kennedy I vis, Aborland, Dr F Roux, French Chandernagore, Vajor Clayton Lune, I vis, Berhampore, Major Murison, I vis, Bombay, Capt Franklin, I vis, Gligit.

# Griginal Articles.

### THE SERO-DIAGNOSIS OF SYPHILIS

BY W. D SUTHERLAND, MD.

LT COL, IMS

In the following résum? the standpoint taken up is that of all the explanations of the facts of immunity that have been offered, that of Ehrlich is the most helpful, because it is the best grounded, and could to morrow be translated into the new language were the terms of chemistry to be changed in consequence of a reconstruction, of chemical nomenclature being neces situated by new knowledge

The sero diagnosis of syphilis, as carried out by the method devised by Wassermann, Neisser and Bruck, or any modification of their method, is based upon the fundamental fact that for specific hiemolysis to take place there must be present intact complement

We know that if a series of rabbits be given intravenous injections of washed sheep's erythrocytes at suitable intervals, we shall, from most of them, obtain a serium which is hæmolytic for sheep's erythrocytes will dissolve these when brought into contact with them in vitro. This hæmolytic antiserum if it be heated to 56°C for half an hour will lose its power of dissolving the erythrocytes, because its complement has been des troyed by the heat, it will, however, regain its power if to it be added some fresh guinea-pigs' serium. The complement of the guinea pigs' serium supplies the want caused by the heating process—reactivates the mactivated antiserum, whose hæmolytic antibody for the erythrocytes has remained unimpaired, but is power less to cause næmolysis by itself—being the bridge so to speak, along which the complement is carried to the erythrocytes.

If we incubate at 37°C for an hour (1) fresh guineapigs' serum, and (2) egg albumin, and then add to the mixture some of our mactivated anti-ovine-erythrocyte rabbit serum and some of a 5% suspension of washed sheep's erythrocytes in salt solution we shall have hemolysis of these last the presence of the egg albumin has not interfered with the reaction. But if we incubate (1) and (2) with an inactivated antiserum for egg albumin—say anti-egg-albumin dog's serum—and then add the inactivated hemolytic antiserum for sheep's erythrocytes, and the suspension of erythrocytes we shall have no hemolysis the presence of the egg albumin and its appropriate antiserum has interfered with the reaction. This is due to the fact that the complement of the guinea-pigs' serum has become fixed by the interaction of the egg albumin with its antiserum, the consequence being that there is none left free to reactivate the inactivated hemolytic antiserum—to complete its amboceptor, in other words

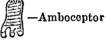
In this case the complement has become fixed by the interaction of a substance with its pecific antiserum, and therefore this form of fixation of the complement is called specific Had we fixed the complement by adding to it some freshly prepared barrium sulphate the fixation would have been non specific In specific fixation it is the mid piece alone of the complement that is fixed, whereas in non specific fixation both mid- and end piece are fixed—an important difference, as we

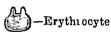
Specific fivation of complement was first observed by Bordet and Gengou, and the phenomenon was utilised by Neisser and Sachs(1) as a means of determining the origin of suspected blood-stains Further observation by Wassermann, Neisser and Bruck(2) showed that fixation occurred when there

were present the serum of a syphilitic patient and a watery extract of the liver of a syphilitic feetus. These observers naturally concluded that in the syphilitic serum there is present an antibody for the treponema pallidum, of which countless numbers are present in the liver of a syphilitic feetus, and that the reaction was as specific in this case as in those in which a substance and its specific antiseium are present.

But later it was found that the reaction occurs when instead of syphilitic feetal liver, the heart-muscle of man, guinea pig of ox is used—the extract being an alcoholic one and then it was shown by Sachs and Rondoni (3) that an alcoholic solution of oleic acid with oleate of soda had the same power of reacting with syphilitic serum and causing complement fixation. The reaction was therefore held to be not specific but characteristic. However it is now known that it is specific in so far that it is the mid-piece alone of the complement that it is fixed (4) (5) (6)

Long ago Ferrata (7) and Biand (8) pointed out that for specific hemolysis to occur both mid-and endpiece must be present, and act in concert the midpiece serving as the link whereby the end-piece is enabled to act, thus —





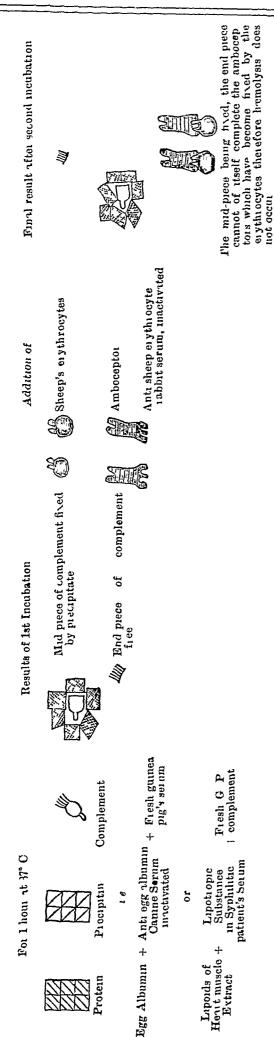


The interaction of the lipoids of the heart-muscle extract with the lipotropic substance which is present in syphilitic serum in much greater amount than in healthy serum (if indeed it be present at all in the latter) causes a precipitate to form, and it is this precipitate which fixes the mid piece of the complement Perhaps the diagrams shown on page 170 will make these points somewhat clearer. I have modified those given by Noguchi in his book (9)

In order to carry out the Wassermann reaction we require —

- 1 Lipoid extract
- 2 Patient's serum
- 3 Known syphilitic serum, as a control
- 4 Known healthy serum, as a control
- 5 Complement—guinea-pig's serum
- 6 Amboceptor—inactivated anti-ovine-erythrocyte
  - 7 Sheep's erythrocyte suspension as indicator
- Lipoid extract -This may be conveniently prepared by digesting finely shredded feetal heart muscle in absolute alcohol for a few days, the proportions being 1 of muscle to 10 of alcohol, and the mixture being constantly shaken for at least the first hour to ensure that as large a quantity as possible of the di amido-phosphatides of the heart muscle is taken up by the alcohol before the albuminous substances become fixed The contents of the flask may be filtered on the third or fourth day, the clear fluid obtained being kept in the ice chest As a rule these alcoholic heart muscle extracts are found to lose their power after 8-10 days, but I have found that one of my extracts had retained its full power for two months, when kept in the cold in the dark Noguchi prefcis that the alcohol-soluble lipoids be deprived of then acetone soluble part and prepares his extract thus

  The clear fluid is evaporated to dryness under the electric fan, and the residue taken up with ether The ether extract is allowed to stand overnight and then evaporated almost to dryness Of what remains 1 volume is mixed with 10 volumes of pure acetone The mixture



is allowed to stand until full precipitation has occurred, and the superintant fluid is then decanted, leaving the acetone insoluble lipoids. Of this 3 gm is taken up by 1 c c of ether, and to this solution 9 c c of methyl alcohol is added to make the stock solution. For the actual reaction of the alcoholic extract 1 part is added to 4 parts of salt solution, of the Noguchi extract solution. I part is added to 9 parts of salt solution. In both cases an emulsion of lipoids is obtained, and the more turbid this is the better.

2 Patients' serum — This may be obtained by taking up the blood from a pin prick on the finger in a Wright's tube. But this method yields very little serum and is not less painful to the patient, while more riksome to the physician than the method whereby 10 or 20 cc of blood are taken from an arm vein, after crieful sterilisation of the skin by means of a pledget of cotton wool soaked in ether, and of the syringe and needle by their being left in 1—20 carbolic solution for at least half an hour. We are thus able to obtain a large quantity of serum, of which some will be used for the reaction and the rest may be stored as a control. As as soon as the serum has separated from the clot in the sterile Erlenmeyer flask into which it is thrown from the syringe, it is heated to 56°C for half an hour to mactivate it. Thus we may avoid all these false reactions which, as Sachs and Altmann (17) Boas, (18) Dean, (19) Isabolinsky, (20) and also Thomsen (20) insist, are easily enough obtained if active patient's serum be used

3 Known syphilitic serum -

4 Known healthy serum — These are obtained from blood taken as above detailed from the rim vein, and must be inactivated

5 Complement —At least two gumes pigs should be bled from the femoral artery and the blood collected in a sterile Erlenmeyer flask, in which we some pieces of sterilised wire or wine gauze. The blood is shaken up until all its fibrin has been taken up by the wire-gauze, and the defibrinated blood is then centrifugalised. The supernatant serum is then pipetted off and kept protected from light until the moment of its being added to the contents of the tubes, for light, especially the bright light of the tropics, is very immical to complement.

6 Amboceptor—This is obtained by mactivating the seium of a rabbit that his been treated by means of injections of wished sheep's eighthrocytes. The ery throcytes must be "wished," in order that no sheep's serum be introduced into the labbit's organism, for otherwise we should have precipitius formed as well as the hæmolytic amboceptor and these precipitius might it terfere with the trustworthiness of our results if for our indicator of hæmolysis we were to use a suspension of badly washed or unwashed erythrocytes

The blood of the sheep is taken from the jugular vein, defibrinated, and centrifugalised. The tube contents are then noted, a mark being made at the topmost level of the supernatant serum, which is then pipetted off. The tube being then filled up to the mark with 0.85% salt solution its contents are shaken, and again centrifugalised. The superratant fluid is poused off, and the process of filling up with salt solution, shaking up and centrifugalisation twice repeated. The ery throcy tes are thus entirely freed from serum. The tubes being for the last time filled to the mark with salt solution, their contents are shaken and the resilting suspension of erythrocytes injected into the mar ginal vein of the rabbits ears—in doses of 2 cc. The injections are repeated on the 4th and 8th days, and on the 23rd day the rabbits are bled and their serum intrated as to its hæmolytic power, after being heated to 56°C for half an hour

This titration is all important as thereby we are able to fix the hamolytic unit of each particular rabbit's seium, and thus to utilise that serum to the best advantage so long as it lasts

The protocol of titration of hemolytic power of a serum is as follows

Tube Amboor 1 10 soluti	eptor salt	Indicator	Complement	
1 1	cc	5% suspension	Fresh gumea pig's serum	Incubation at 37° C for two
2 7	5	1 cc ın	1 10 salt	homs
3 5	.	each tube	solution Sec in	
4 2 5 1 6 1	5		each tube	
5 1:	9		}	
7 1—100 7	5		ì	
7 1—100 78 8 5 9 23	_		,	
			]	
10 18 11 0	Ð	Į.		
Volume made	e un		. ,	
to 1 ce with	salt	İ		
solution, wl	iere			
necessary			1	

If, for instance, we find that complete hemolysis has taken place in tuber 1-7, while in tube 8 the h emolysis is incomplete we know that the least h emolytic dose of this particular rabbit's serum lies between 75 cc and 5 cc of a 1 100 dilution, ie, between 0075 and 006 cc being 00625 cc which is our hemolytic unit for this hemolytic antiserum. Two units—0125 cc will be required for the Wassermann reaction, and no turther titration will be needed so long as our supply of this particular antiserum lasts

Indicator -Of washed sheep's eighthocytes a 5 per cent suspension in salt solution is prepared and the

unit of this is in all cases 1 ce

All being ready the reaction is carried out as follows crie being taken to keep the complement in the dail until it is actually required. I may note here that fresh complement must be prepared every day, and certainly it is not a good plan to keep one's indicator for more than 48 hours, the bettle containing it have been more than 48 hours, the bottle containing it being kept on ice when not in use

The protocol of the reaction will be this-

		===				
Tube	Lipoid	Seiles A	1	series C		
11100	Extract A 1 5	Patient's 56° 1 10	Syphilitic S 36° 1 10	thy 10	Comple ment 1 10	ì
		Patn 56° 1	Syph Solution 1	Healthy S 56° 1 10		, 
1	75 ee	t cc m	l cc m	i cc in		Incubate
2	5	tube	fube	tube	every tube	at 37°C for one hour
} 4 Made	25 0 up where			· ·		110(11
1 0	esang to c with solution	1				
		}	}			

To contents of every tube add 1 unit of indicator and 2 units of amboreptor Shake well Incubate for 2 hours at 37°C

If our patient be a prey to active or even latent syphilis, secondary or tertiary, we shall find that there is marked, or complete, inhibition of hæmolysis in tubes A, A, and A, Just as in tubes B, B, and B, In the other tubes hemolysis will be complete

If the supply of serum have been sufficient and we have used a second lipoid extract for another major series, we shall have ample confirmation of our findings

As will be seen the whole process of obtaining the Wassermann reaction is a tedious one and can only be carried out in a well equipped laboratory by a trained observer, if trustworthy information is to be derived from it. For this reason several modifications of the technique have been introduced, but although some of these have enjoyed favour at the hands of dermatologists and others, only one, in my opinion, is likely to continue to be carried out

The celebrated Noguchi(10) tried to work out a technique which might be followed by any general practitioner, even in country practice. His idea was to place both the complement and the amboceptor (in this case an anti human erythrocyte iabbit seium) dried on slips of blotting paper. The country doctor was then to put into a test tube some salt solution, drop into this the complement slip, &c, &c,—using his own erythrocytes as the indicator of hiemolysis, and his waistcoat pocket as the incubator. However from his However from his latest work (9) I gather that Noguchi sees that in this matter his zeal to help the general practitioner had somewhat outrun his discretion I feel sure that only failure could result from application of the above detailed technique, and I cannot understand how v Dungern came to work out his modification(11) in which the patient's bloo I supplies both the serum to be tested and the crythrocy tes of the indicator Bauer (12) trusts to the presence in the patient's serum of a natural hiemolytic amboceptor for sheep's crythrocytes, as do Hecht(13) Even were it not the case that, as and Fleming(14) Bassett Smith(15) has shown, this natural amboceptor is entirely absent in 10% of cases, it is clear that as its amount cannot be estimated by Bauer's or these other observers' technique in those cases in which it is present then modifications are unsound For, as Hoehne(16) well says, one does not need to be a profound mathematician to see that a method which admits of two or three unknown factors is not more simple than that which admits of only one Besides as will be obvious, for Bauer's, Hecht's and Fleming's methods the patient's serum must contain complement, ic, it must be quite fresh. This is a drawback, even were it not a fact that—as previously mentioned—patient's serum if not mactivated gives false results even when the original technique is carried out For this last reason the modification carried out by Margarete Stein (22) is not to be recommended although she sets great store by it Tschernugubow (23) uses gumea-pig's crythrocytes as the indicator, and trusts to the presence in the patient's serum of a natural amboceptor for these Detre and Brezowski are said to use horse's erythrocytes as indicator and an amboceptor for these obtained from a treated tabbit Carl Browning has, I believe proposed that ox's eigthrocytes be used as indicator, since he has found that the natural amboceptor for these present in human serum is in very small amount Doubtless in Europe his suggestion will be readily adopted, as his careful work is well-known, but out here there are peculial circumstances which preclude ox blood being

It is of interest to note that the results obtained by means of the various modifications of the original technique are always compared with those obtained by it, so that trutly the inventors of modifications admit that the original technique is the standard technique Let it remain as the standard, other tests have from time to time been devised

The Optical test-this was devised by a very careful and modest observer, Jacobsthal (24) the aid of a dark ground the observer can compare the fields presented by (1) the emulsion of the lipoid extract, (2) the emulsion mixed with the patient's serum, (3) the emulsion mixed with known syphilitic seium, (4) the emulsion mixed with known healthy seium. The fields of (1) and (4) show the hiposomes lying discrete—as do the eighthrocytes in a fresh blood prepriation, whereas in (2) and (3) they are clumped together, as if agglutinated. As yet no observations

confirmatory of Jacobsthal's findings have reached me, but I feel sure that work done by him will be found to stand the tests of time and experience

- The Butyric Acid test of Noguchi was devised to show the increased globulin content of the serum and cerebro spinal fluid which obtains in syphilis It also occurs in certain acute diseases of the meninges, but these may easily be excluded by the history of the case
- C The Luctin test -Noguchi claims to have succeeded in cultivating the tieponema pallidium, and to have obtained from it material which he uses after the manner in which tuberculin is used in obaining v Pirquet's reaction So far no confirmation has appeared of his findings, of which he has published some beautiful plates. Apparently he obtains the best results in cases of tertialy syphilis
- The Lecithin test devised by Porges and Meiers A 1-100 suspension of lecithin in salt solution gives a marked precipitate when it is incubated for 24 hours at 37° with the serum of a syphilitic case
- E The Sodium-Glycocholate test was devised by Elias, Neubauei, Porges and Salomon—A freshly prepared 1—100 solution of sodium-glycocholate is mixed with the patient's seium, and the tubes kept at room temperature The precipitate obtained compared with that obtained from the mixture of the solution with known healthy and known syphilitic sera

D and E-I have mentioned for the sake of complete-

They are not much, if at all, used now

The reaction of complement fixation is modified to a certain extent by treatment, in fact it gives us valuable information as to whether the infection by the treponema palliquim is yielding to appropriate treatment It is always helpful to the serologist to know the history of the patient whose serum he is called upon to examine—as to the previous treatment of the case, its method and duration. Thus he is able to estimate the cause of a slight inhibition of hæmolysis

Treatment by mercurial preparations does not of itself cause the reaction to become less, for as Ritz (24a) has shown, it is only when there is present in vitro a far greater quantity of corrosive sublimate than could ever be present in vivo that the reaction is markedly interfered with. The mercury influences the treponema, and thus indirectly the lipotropic content

of the patient's serum

It has been said that malarial infection causes false results to be obtained by the Wassermann reaction (25) On this further observation is required (26) (27)Obviously the question is a most important one would suggest that those who desire to aid in its solu tion should note regarding the sera sent whether the infection is acute or chronic, whether quinine has been taken at any time during the infection, and whether at the time of taking the patient's blood malarial parasites are found to be present

As is well known, another treponema-caused disease—frambæsia gives the reaction, but here there does not seem to be much scope for error on the part of the physician. Those strikingly false results which were early reported to have been obtained in cases of scar latina, etc, may easily be avoided if the patient's serum

be mactivated before the test is applied

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#### LIFE ASSURANCE IN INDIA

BY ADRAIN CADDY, r.R.Cs.

#### Calcutta

MR PRESIDENT AND GENTLEMEN, \*-My brother Dr Arnold Caddy and I have been considering for some time whether some interesting information might not be extracted from our records of insurance cases examined by us

Our records were commenced by Dr Coulter and my brother in the year 1892, and since Dr Coulter's retire ment in 1904, I have been assisting in their compilation also, thus for the last 19 years they have been built up under the same plan, and although three persons have been instrumental in their keeping, it is as though one person had been in charge of them throughout

In every case that we have examined ourselves, we have noted the candidate's name, the company, the age, the race, with natives, their religion, the height, the weight, the chest and the abdominal girth, and have made a brief comment as to cause of rejection or loading, if any existed, likewise the presence of hydrocele and the consumption of opium or bhang have always been noted

In those cases where we have revised the papers of other examiners, we likewise noted the name of the candidates, the lace, the age, the religion, the cause of rejection or loading, together with cases of opium or bhang consumption and Lydrocele as before

Up to the end of 1910, we had revised the papers of 5,179 cases, and had examined personally 6,276 cases, making in all 11,455 cases

We classified them into three classes -

- Fan average lives requiring no extra, I and assur able at ordinary lates
- 2 Lives requiring some extra, such as an addition in years to the age, or that could be taken under an endowment scheme

3 Lives so bad as to be declined outright

As regards then places of origin, we classified them as below -

### REVISIONS

Euro Euro	pean	s (bred at home) s (bred in India)		•	1,065 166 213
Eura	gians				
		Dan wal			1,313
Men	irom	Bengal		•	1,266
	21	Deccan			
"	21	Punjab .			322
"	,,				268
,,	"	Gujarat		• •	44
,,		Central Provinces			
"	"	_			151
"	13	Paisis		• •	25
		Armenians		••	20
"	"	A A (Di orino)	not	as	
"	"	Asiatics (Province certained)	1100	42	340

<sup>\*</sup> Synopsis of a paper read at the Asiatic Society of Bengal

91

#### EXAMINATIONS Europeans (bred at home) 1,799 Europeans (bred in India) 335 Eurasians 317 Men from Bengal 3,483 Deccan 25 " 11 Punjab 31 33 33 Gujarat 22 " 71 Central Provinces 54 19 " Parsis 39 " Armenians 80 " "

This classification divides India into large areas as regards natives and also differentiates some of the races living there

Asiatics (Province uncertain)

In this classification the phrase "country bied European" frequently occurs, this means a European who has lived most of his life in India and has not been Home for his education for a period of several years If a man before the age of 20 has spent over 12 years of his life in India, he would be described as a 'country bred' European, similarly in the case of a man boin in India, who was sent Home at four or five years of age, was educated at Home and has then returned to India possibly to join one of the public services, at the age of 18, 20 or 22, one would not describe him as a 'country bred' European, but call him a Home bred one, these two are extreme cases used to illustrate the distinction between them

One sees also that with 'country bred' Europeans there is a possibility of a mixture of Asiatic blood but not sufficient to be noticeable, we think that in a mix-

ture of  $\frac{1}{16}$  of Asiatic blood is just noticeable

Eurasians are persons with well marked Oriental admixture varying from those almost European to those almost Asiatic, the term 'Anglo Indian' recently in troduced in the Census Returns, is unfortunate, all Eurasians are now called Anglo Indians, but large numbers of 'country bred' Europeans call themselves by the same title

The races of India divide themselves into two great classes, the men in the "hills" or the sub montane regions of the Himalayas and the men of the plains, the hill men do not concern us much as they are not an insuring class, as a rule being more uncivilized than the plains men

The men of the plains probably vary less from one end of India to another than do races in Europe, a man from Madras lives a very similar life to a man from Bengal, they are both largely vegetarians consuming nice, the men in the Punjab consume more wheat and maize and some of the races there eat more meat, but even then they are vegetarians as compared to Euro peans The point that we wish to emphasize, is that the races in India are much more homogeneous as regards their method of life than in Europe, we think that there is much more difference between a Frenchman and a Roumanian for instance than there is be tween a Bengali and a Madrasi, or again between a Norwegian and an Italian than between a Punjab and

The chief papers on insurance questions in the tropics, which deal with the subject statistically, are, first and foremost a paper by Mr A T Winter, FIA, entitled "Notes on Mortality and Life Assurance in India," read before the Institute of Actuaries in 1909, on page 8 he

"Amongst European lives, the mortality is nearly as high in the first five years of assurance as in subsequent years," and then again, "during the first few years of residence in India, Europeans are more likely to become victims to anterior fater and similar discover them. victims to enteric fever and similar diseases than subse quently and as assurances are frequently effected when a man goes out to the country, this period of acclimati-cation is often concurrent with the first five years of assurance. This, I think, explains to a large extent the heavy mortality of Europeans during that period"

Then, again, on page 26, he writes -

"The effect of selection on European mortality in India is not apparent, the mortality rates of the first five years of assurance being approximately the same as those ruling for lives of the same age which have been insured for longer periods. This may, perhaps, be accounted for by the fact that the trying period of acclimatisation is frequently concurrent with the first five years of assurance"

"The most eligible class of natives are assurable at the same rates as Europeans in India, provided their

age at entry does not exceed forty"

This paper is the best and the latest that we know of on the subject, and we cannot understand how it escaped the notice of Mr Canthe who has read a paper before this Society on Tropical risks, and who wrote recently in the Journal of Tropical Medicine and Hygiene (February 1911) "that there were no statistics available as to the value of life in the Tropics"

Quoting Mr Winter again, (page 8)

"Up to the age of 45 the mortality of Asiatics is more favourable than that of Europeans, and the effect of selection is much more evident in the former race "

"The Eurasian experience is perhaps too small to base any definite conclusions upon, but it will be noticed that the mortality of this race is lighter in the first five years than in the case of Europeans and Asiatics, and

heavier after the first five years"

This is perhaps explained by the fact the Eurasians and country-born Europeans have been found to suffer from enteric fever much more commonly in childhood, than is the case at Home (vide Major Leonard Rogers, Indian Medical Gazette, 1908); that is to say, before the insurance age is reached, the view used to be held that natives and Eurasians were immune to enteric fever, but this has been shewn by Rogers to be due to their having been usually attacked in childhood by this disease

Height and weight —The first thing that we set ourselves to do, was to see that we had sufficient figures available to construct a table of Heights and Weights for any of the native races

Looking through our records we found that we had examined 1,799 Europeans and 3,480 Bengalis, in the case of other native races we had examined less than 100 of each race, and of Eurasians and country-born Euro peans between three and four hundred of each

We felt it useless to attempt to construct a table with races other than Europeans and Bengalis owing to

paucity of numbers

All revision cases were excluded from this investiga tion as we had doubts of the accuracy of the weights recorded in these cases, we only worked at the cases

examined by us personally

The next question was whether all males were to be included in the table or only healthy males We decided to include all cases, as the standard used in determining a healthy life, is the European standard, and is purely an arbitrary one for natives, in other words the native is judged by the same standard as the European, and experience has shewn us so far that this is the right one (vide Winter, Jouin Inst Act, Vol XLIII)

For comparison we worked out the following table for uropeans, from our cases We know that many and Europeans, from our cases fuller tables for Europeans had been worked out before, much but never before for Europeans in India, and in this table also we included all males examined by us

The European table we have plotted out graphically, and it corresponds very closely with Hutchinson's table, the integularities in it are due to the relatively small, number of cases recorded

The Home bied European, with whom this table only conceins itself in India, generally belongs to what is known as the public school class, such as Government servants, military officers, and assistants in mercantile firms, and a smaller number engaged in retail and mechanical trades, classes that lead healthy and out door lives and take part in sports, and who often in the course

of then occupation have to do more horse riding than falls to the lot of the man at home

Our table shows that below 5 ft 6 ins the average European weight is above normal, and over 5 ft 6 ins the average weight is less than normal, comparing it to Hutchinson's table, perhaps this may be ascribed to the influence of medical selection before arrival in India, as the majority of men coming East, are medically examined before they start, or it may be put down to the more active and open air life enjoyed in India, exercise improving the physique of the persons under weight and tending to diminish obesity in the stout

Our table of the Bengali race admittedly surprised us, there is a view very commonly held, that native races, height for height, are generally lighter than Europeans, perhaps the wish is further to the thought among insurance managers in the East, as so many natives are

rejected for inferior physique

It has been stated that the native bony frame is lighter than the European one, but our table shews nothing of the kind, the average native weight corresponds very closely to the European standard—when one thinks of it there is no reason why a native of height 5 ft 4 ins say, should weigh any different to an European of the same height, and our tables bear this out. The native is very slightly lighter than the European, but not as much as had been thought, the average native weight corresponds very closely to Robertson's table up to 5 ft 6 ins and after that the weight is less than Robertson's table, we know that Robertson's table overestimates the weight over 5 ft 6 ins, and under estimates the weight over 5 ft 6 ins, and under estimates the below this figure, Robertson's table is the one that we use most commonly in India, we do not know why, possibly because it is kinder to the shorter persons, a popular view being that the average height of natives is less than that of Europeans, a view which we shall shew later to be a correct one

We append Hutchinson's, Robertson's and our own European and Bengali tables in tabular form and in addition we mention the number of cases for each inch

of height that our figures are based on

Tables of Houghts and Weights \*

	15.0n	ao	Our T	ABIF5
	Hutchinson	Robertson	Luropean (1,750 cases)	Bongali (3457 cases)
4 ft 10 ins 4 , 11 , 5 , 0 , 1 , 5 , 7 , 7 , 7 , 7 , 7 , 7 , 7 , 7 , 7	10S lbs 126 " 133 " 139 " 142 " 145 " 148 " 155 " 162 " 171 " 179 "	108 lbs 113 119 125 137 137 157 157 172 179 187 195 203 211 219	110 lbs (2) 0 " (1) 138 " (17) 136 " (43) 144 " (81) 144 " (203) 147 " (203) 147 " (228) 155 " (343) 154 " (219) 161 " (181) 167 " (144) 170 " (62) 184 " (44) 181 " (13) 194 " (3) 179 " (1)	111 lbs (3) 113 , (10) 119 , (80) 123 , (157) 125 , (378) 129 , (432) 139 , (525) 142 , (553) 147 , (508) 152 , (386) 159 , (240) 163 , (126) 173 , (84) 182 , (17) 159 , (6) 200 , (3)

The numbers in brackets are the actual number of cases examined

-\*[This table of course only refer to the better class Beng dis It is far in excess of the formula for men of the agricultural classes, which is about 5 ft =100 lb 5 ft  $\beta$ =109 lb, etc.— ED, I M G ]

Our next investigation was to determine the average height of Bengalis, we worked out the average in 3,487 cases examined by us personally, and found that the average height was 65.83 inches

We also worked out the height of the Europeans examined by us, in all 1,756 cases and found that the average came to 67 95 inches

There is thus a difference of over two inches in favour

of the Europeans

Comparing these figures with the tables constructed at Home, we find the following table quoted in Steven son and Shirley Murphy's work on Hygiene (Report of the Anthropometrical Committee of the British Association, 1883)

Relative height of English adults of the ages from 25 to 30 years under different social and physical conditions

of life

Upper and professional classes 69 14 inches Commercial classes 67 95 , Agricultural, Mining and Scafaring 67 51 ,, Artisans 66 61 ,, Factory and sedentary occupations 65 92 ,,

These tables show that the European in India is of the average stature, considering the classes that he is

recruited from

The Bengali, on the other hand, has only the average height of that of the sedentary workers at Home, that is to say he compares with only those of the poorest phy sique in the Old Country

Notwithstanding this the insured Bengali is always considered to be a select person among the whole race, the vast majority of natives in India being quite unin

surble owing to their poverty and illiteracy

We think, then, that we may consider it proved that the Bengali is a shorter man than the European, and this bears out the doctrine commonly believed, that the closer one goes to the Equator, the shorter does the race become

Causes of rejection among European and Native Races—Considering the cases that we have examined our selves, we find that among the European (1.799 cases), we loaded 8 per cent of the lives and declined 6 per cent, making a total of 14 per cent

Country boin Europeans,

Eurasians ,, 7 88%, ,, 16 53%, ,, 31 91%

and for other races the figures are fairly similar, but the numbers are not enough to deduce results from

The percentages are based on the following numbers—
Country born Europeans 317
Eur islans 3,483 cases
Bengalis 3,483

It is not much use quoting the results in the cases we have revised, as the percentage of loading is much higher, owing to our receiving an undue proportion of doubtful cases

We have worked out the causes of loading and re jection among all our cases, whenever a case required an extra, we have put down the most important cause for loading, as for instance, obesity, inferior physique, etc.

We classified the causes of loadings on lives under the following plan -

Inferior physique.
Obesity
Glycosuria
Albuminuria
Consumption
Consumptive family history

Bad family history (often in Indian 118ks, many members of a family have died of uncertain causes, and if several have died young we think that an extra 18 usually called for)

Syphilis
Heart diseases
Sundry diseases
Elephantrisis
Alcoholism

The questions relating to opium, bhang and hydrocele, ne discuss later

Firstly, we will compare Europeans and Bengalis, as in these races we have larger numbers to deal with than in any other

Cases we have examined only, percentages loaded and

declined added together

Disease	Europeans	(1799)	Bengal	ıs (3483)
Inferior physique	i 55 j	er cent		per cent
Obesity	2 11	17	5 34	· ,,
Gly cosuria	61	**	$3\ 24$	"
Albuminuria	1 22	"	1 98	,, ,,
Consumption	44	,,	91	"
Consumptive fami	ly			"
history	1 38	19	77	17
Bad family history	5	,	<b>63</b>	"
Syphilis	10	,,	34	"
Heart disease	1 05	19	89	"
Sundry diseases	339	,1	496	"
Elephantiasis		"	22	"
Alcoholism	72	"	22	"
711 4-1-1 d			^^	_ ′′

This table reflects the chief differences between Europeans and Natives, the Eurasian and country-boin European trbles me a blend of these two and as far as our figures go, there does not seem to be any striking

difference among other Native races

Comparing the two most important causes of loading viz, inferior phys que and obesity, we note that a high percentage of loading occurs among Natives compared to Europeans, 5 36 per cent of Bengalis are of inferior physique, and 5 34 per cent are obese, while among Europeans the similar percentage is only 1 55 for inferror physique and 211 for the obese

We consider inferior physique or obesity to be 20% under or over the mean weight for a particular height.

The reason for these large percentages, is that probably malaria and dysentery in youth and occasional famine account for the inferior physique and an excessive car bo by drate diet and insufficient exercise among the well-to do account for the obesity

The height and weight are the most important factors in estimating the value of a native life, they are accurate while statements as to personal or family history are frequently maccurate judging by the reports of different examiners on the same life when examined

on behalf of several companies

The next most important point of interest is the question of glycosuma, among Europeans only 61% are affected, while among Bengalis the percentage is 324, the difference is very striking, apart from the large carbo hydrate diet consumed by natives, no obvious reason for this great difference can be detected

Cases of gly cosuria are always regarded with grave

suspicion and are generally declined

In our experience it is rate for a man to come up for examination after having been postponed for three months, and pass successfully the tests for absence of sugar, if sugar has once been found

Albuminuria does not call for special comment, the percentages are not very dissimilar, the slight increase in Bengalis one would expect in a race so prone to

gly cosui ia

The consumption figures show nothing striking, except the difficulty of eliciting a consumptive family history in natives

The low figures for syphilis are what one would expect in a race where child marriage is universal

The figures for heart disease are lower than among Europeans, owing no doubt, to the rarity of rheumatic fever in India

We were surprised at the small percentage of elephantiasis shewn among natives slighter grades of which complaint we expected to find more common, although well marked cases would not come up for

As native races are largely total abstainers, the alcohol figures are considerably less than among

Herma - As regards berma in natives, the question of a truss clause often arises, a native is examined, a heima is found, it is recommended that he can be accepted if wearing an efficient truss, the agent then takes him round to the nearest chemist, a truss is brought and fitted, the candidate appears again before the examiner, all is found well, and the candidate is accepted, having signed a truss clause agreeing to wear a truss, this may be worn for a few days and is then thrown away

This, of course, is a very different situation to the European, who has worn a truss all his life, and who is likely to continue to do so, the native does not see the necessity for the truss and looks upon it as an irksome restriction, he is not surrounded by efficient practitioners as is the European, but often comes in contact with quacks who are desirous of curing him by medicaments, hence often the truss clause is not worth the paper it is written on.

The question then arises whether among natives living in native conditions, the truss clause should be abolished, and simply an extra of say 1% on the sum assured, be

imposed for reducible hernia

Irreducible herma should be declined as at home

Among natives living in European style such as baiusters, who have been home, a truss clause night still be maintained without an extra, if the candidate had worn a truss for some years

Hydrocele - We have worked out the rather interesting figures in connection with hydrocele, these figures shew what is the incidence of this complaint among the

valious laces

In all 11,455 cases have come before us up to the end of 1910, of these 6,276 have been personally examined by us, and 5,179 cases we have revised after examination by others

### Revisions

		HYDROCELL			
	Total* Numbers	Numbers	Percent		
Europeans (Home bred) Europeans (Indran bred) Eurasians Bengalis Madrasis Punjabis Gujeratis Mariathis Parsis Armenians Other Asiatics	1,065 166 213 1 319 1,266 322 268 44 151 25	1 2 21 11 1	60 92 1 58 86 37		
Total	5,179	38	<u>58</u>		

### EXAMINATIONS

	Total	Hydrocele			
	Numbers	Numbers	Percent ages		
Europeans (Home born) Europeans (Indian born) Europeans (Indian born) Europeans Bengalis Madrasis - Punjabis Gujeratis Marathis Parsis Armenians Other Asiatics	1,799 395 317 3,483 25 31 22 54 39 80 91	4 12 5 178 2 2 1 6 1 0 2	22 3 57 1 57 5 10 8 6 44 4 54 11 1 2 56 0 2 18		

Some of the totals are too small for statistical purposes, but as far as our own examinations are concerned, comparing Europeans, India bred Europeans, Eurasians, and Bengalis, we may say that as the percentage of Asiatic blood increases, so does the percentage of hy drocele

The reason for this being supposed to be due to the fact that Bengalis wear a dhotie, or loin cloth very loose. where as many up country races and especially the working classes, the loin cloth is worn tight, so as to bind up the scrotum and protect it from injury

Hence it was thought that having the scrotum banging loose must tend to the causation of hydrocele, but taking the figures at our disposal there does not seem any evidence to show that hydrocele is less common

among the up country races

Among Europeans, the use of a scrotal suspensory bandage is much more common than at home, but we see by the figures that hydrocele among them is very 1 are, in spite of the fact that the European is generally a nider of horses, and consequently much more likely to receive scrotal injuries from blows from the saddle, the Bengali is rarely a horse rider hence we must search for some other cause besides injury for the ætiology of this complaint

Comparing healthy and unhealthy lives among Bengalis, we find some difference in the percentage of

hydrocele in the two classes

	Total Bengalı Examınatıan	Healthy lives only	Unhealthy lives only
	<b>3 48</b> 3	2,615	868
<b>Hydro</b> cele	5 10%	4 25%	7 6%
Total Nos.	178	111	67

We recommend now, that no extra be imposed on home bied Europeans for hydrocele, but for all others, whenever the girth of the scrotum is over 12 ins, we advise an extra, with a scrotum as big as this, and using a popular term, it is a scrotum the size of a cocoanut, we think that an extra is still required, as apart from the difficulty of the applicant being able to take sufficient exercise to maintain health, often some cedema of the scrotum is present, which may be due either to back pressure on the scrotal veins only, or to commencing elephantiasis

We may say that most companies in India, for hydrocele charge an extra of 1 per cent on the sum

assured, when it is required

This extra being removed when radical cure has been performed

Opulm — The question of the consumption of opium

is one of especial interest to the Eastern examiner, in temperate climates the European opium consumer is not a person who usually applies for insurance

When a European takes to using opium, it very rapidly develops into a serious vice, from which there

is generally no breaking away
With the Oliental it is different, he takes opium in the same way that a European takes tobacco, that is to say, a small quantity of the drug is used daily, and there is no desire to increase the dose, and after many years the man is still using the same amount of the drug

In India, the confirmed opium wreck is a rare person to meet with, we think that he is much less common

than the alcoholic wreck at Home

Our experience shows that opium-taking is not a common thing in India among people of the insurance

age (20 to 45)

We think, that opium is more frequently used by people during their declining years (45 and upwards) but we have no statistical evidence on this point, but this is a view very commonly held by medical men in India.

Dealing with our own examinations only, we found no opium takers among country born Europeans or Eurasians

Among 3 825 Asiatics examined by us, 18 candidates admitted to taking opium, of these 3,483 were Bengalis, with 17 cases, and 342 other Asiatics with one case

Even allowing for numerous instances of suppression of the truth, the figures shew how rare the habit is in India in insuring classes

Of these 18 cases, 15 were declined outright, and two

In dealing with opium cases, our rule has been, to accept a case, if the applicant does not take more than a phaimacopial dose daily (we fix the limit at 4 or 5 grains a day), and is otherwise perfectly unexceptionable, but as will be seen from our figures, it is rare for an opium taker to come up to the necessary standard, generally some other flaw is found in his health

The only statistical evidence that we know of, con cerning the supposed effects of the consumption of opium on mortality, is in a paper read by Mr A W Tarn, FIA, Jour Inst Act, July 1899), he quotes the evidence of Mr Slater of the Oriental Life Co who investigated the first 779 death claims of the company,

and found no death due to opium

In the light of our own figures, this is not a surprising result, if the taking of opium is so uncommon, one would not expect to find many deaths from its effects, and we would point out, that these causes of death were being investigated by a layman, also we would expect opium to be put down as a cause of death on a death certificate, about as often as syphilis or alcoholism are put down on certificates in England which as we all know are very rarely mentioned in certificates, notwith standing their frequency as a cause of death

In India, opium is almost invariably eaten, while in China it is smoked, opinions differ as to which is the

more injurious habit

As regards smoking, a paper has recently appeared written by Mr S B Neill, FIA, Actuary of the China Mutual Life Co, he read his paper before the Opium Commission sitting at Shanghai in February, 1909

His figures deal with 13,336 lives under observation,

and 549 deaths

This summary of his results is as follows

1 "That the mortality experienced by smokers is heavier than that experienced by non opium smokers

2 "That opium smoking is more injurious in tropical

than in sub tropical or temperate climates

3 "That though it would be difficult to trace any particular death to opium smoking, yet it is probable that the digestive organs are primarily affected by the habit, and the smokers become emaciated and lose weight"

Companies working in India, generally have a ques tion, as to whether an applicant takes opium, but the Companies in China, go into this much more fully, and have several questions to be answered by option smokers, such as the duration of the habit, and the

quantity consumed

Mr Neill found, comparing the percentages of the causes of death, that deaths from diseases of the diges tive system were three times as common among smokers as among non opium smokers He found among appli cants at the time of examination, that the percentage of persons underweight was twice as large among smokers as among non-smokers

The report of the Opium Commission of 1895 (Parha mentary Papers, Vol 29) is rather vague in its findings, it says that estimates vary from 2% to 30% as to the numbers of the adult male population who take opium

It says that excessive consumption occurs among Rajputs (Marwaris) and Sikhs, and in moist low lying districts such as Assam and Bengal (According to our figures this last statement is not true of the Benguli insuring classes )

The average dose is stated to be 2 to 8 grains daily and cases up to 50 and 80 grains daily have been recorded

The average period of life at which the habit is commenced is from 30 to 40 years of age

25% of the consumers used it excessively, that is to say,

20 grains a day and more

The Commission had very few statistics available, their findings are chiefly based on the views of various medical men practising in India at the time, practi cally none of whom could produce any figures to support their statements.

We do not wish to seem to belittle the findings of the Commission, it collected much valuable information concerning the growth, preparation and sale of opium, but we think its medical views on such questions as the harmfulness of opium, will be considerably modified in the future

The Commissioners rather took the view that opium eating in moderation was comparatively harmless

Vincent Richards once examined the opium question in Balasoie, Orissa (Encycloy Birt, Vol XX, p 136, 11th Ed), he found that one in twelve or fourteen of the population use opium, of 613 opium eaters examin ed by him, the average age that the habit was commenced was 20 to 26 years for men, and 24 to 30 years for women, of this number 143 had eaten opium for 10 to 20 years, 62 for 20 to 30 years, and 38 for more than 30

The majority took it daily, morning and evening, the dose varying from 2 to 46 grains daily, the average dose being 5 to 7 grains daily, the dose when large had been increased from the beginning, when small there had

usually been no increase at all

The causes which usually led to an increase of dose being disease, example, or a belief in its aphiodisiac powers, the chief diseases for which it is taken being malana, dysentery, rheumatism, spitting of blood, and elephantiasis.

Richards concludes that the excessive use of opium by the agricultural classes, who are the chief consumers, is

very rare

Moderate use, he found, causes no appreciable ill-effects except weakening of the reproductive powers, the average number of children in the families of opium eaters, being 1 11 after eleven years of married life

This last percentage is based on 125 married men averaging 36 years of age among a total of 613 opiumeaters examined, the average dose of these married men being 14 grains daily, and the length of time that they had been addicted to the habit being 12 years

In the Indian Army Field Service Regulations (Ed 1906), it is laid down that up to 20 grains per head per diem of opium will be supplied to native troops on payment, British troops get one pound of tobacco per month per man, both these quantities err on the side of liberality

We thus see that the opium question is characterised by the absence of accurate information; even Mr Neill in his paper does not discuss the question of what extra is required for opium smoking in China

Our view is that opium is less commonly consumed in India than is supposed, but when consumed, it is more harmful in its effects than the Royal Commission

Hemp Drugs - Indian hemp is consumed in several forms in India for the purpose of intoxication, it is either smoked as gann, which is the dried flowering top of the female plant with its resinous coating, or if the resin is scraped off the leaves, it is known as charas and also smoked, or an infusion is made from the leaves which is drunk and is known as bhang

The Indian Hemp Drugs Commission investigated the question in 1893 4, the Commission thought that the moderate use of hemp causes no appreciable evil results, but excessive use may cause injury, but excess

In excessive consumers the injury is not clearly marked, indirectly they seem more liable to dysentery and bronchitis

The average daily consumption is thought to be about 45 grains aday, excessive consumption would be from

180 to 360 grains duly (p 388)

This quantity seems hard to believe when the phai macopæal preparations are borne in mind, and it raises the question whether there is not a considerable admixture of foreign material such as cellulose in the drug as sold in the bazars

The consumption of hemp causes a good deal of insanity, asylum statistics state that 30% of cases in asylums are due to hemp, the Commission held that these figures were exaggerated and thought that the percentage was nearer 7%, the exaggeration being due to the fact that non-medical men compute the figures (police officers, clerks), and that the medical officer of an asylum has to take the word of the patient's friends about the use of hemp

There are no pathognomonic signs of hemp insanity, the type is usually mania, it is usually of short duration, being maniacal in its type, this perhaps accounts for the

number of cases in saylums.

The Indian Immigrants Commission, 1885-7, stated that the Protectors of Emigrants called attention to the evil effects of hemp drugs on coolies causing increased sickness, running amok and mability to work steadily

Among our own insurance cases, our experience is the same as with opium, the consumption of hemp is very raiely admitted, in 3,735 native cases revised by us, there were five cases of hemp consumption, all the cases being declined, among 3,825 examinations of natives, we found four cases of which three were declined, and one accepted with an extra, again admitting that there is probably much suppressio veri, even then the consumption of hemp is comparatively small, we believe that the regular consumption of hemp is uncommon, but usually once or twice a year bhang is drunk at festival time by large numbers of natives, but the occasion occurring but rarely, it escapes then memory when the question is asked

One sees from our figures, that the majority of hemp takers are declined and until further accurate information is available, we recommend that these cases be judged very severely, we know that hemp produces a severe form of intoxication and frequently causes insanity, it is hard then to believe that the regular

consumer is as long lived as the abstainer

It is possible that the reason for so few cases coming for examination may be due to the fact that companies know that most examiners look askance at hemp risks,

and so do not send them for examination

Nervous Wear and Tear in the Tropics - There is a prevalent idea that residence in hot countries renders Europeans more liable to nervous breakdown than in temperate climes, we do not know that any of the Government statistics concerning the Army of any of the Services shew this to be the case, the idea is probably due to the alleged trascibility which is supposed to overcome the white man after years in the East, as described in popular literature

Dr Basil Price, the Secretary of the Association of Medical Officers of Missionary Societies, read a paper at the British Medical Association (Tropical Section), in September 1910, on the causes of death and retirement among the Missionaries of 18 Societies between 1890 and 1909, there were 628 deaths and 265 retirements, among these retirements 39 per cent were due to neurasthenia and insanity (melancholia), yet among the causes of death, the percentage is so small that it is not mentioned as a separate cause, being much under 1 per cent, this high percentage of retirements from mental trouble may be due to the depressing nature of the occupation more than anything else

The following classes of risks are generally considered bad in India, Rajahs and wealthy landholders, persons corresponding to West-End lives at home, these risks

often live lives of extreme luxury, surrounded by courtiers and poor relations only too anxious for their speedy demise, and except in a few cases there is no athletic spirit as in England, which can counteract the effects of rich living, when they insure they do so for large sums and there is often difficulty in making a satisfactory medical examination owing to their dislike to visiting the examiner's house

Native female lives most companies will not insure on any terms, female life is not held in the same esteem as male life, and death, the result of mattention during confinement, accounts for a high female mortality

Only native females living under European conditions, such as the wives of Europeanised Natives are

ever msured

Marwaris, the banking and money-lending class, are also mdifferent risks, they live in crowded bazars, are rather subject to syphilis, generally refuse to be vac cinated, and are prone to excess in opium and Indian

Petty shop keepers also are indifferent lives, the same objections that apply to Marwaris, apply to them also,

except that they are usually vaccinated.

The best native risks are Government servants, because they have already been examined medically for Government service, and native clerks in European offices, a very common insuring class

Natives who take to European wines or spirits, are generally indifferent risks, often it leads to excess, and it involves the breaking of a very strict caste rule against

the taking of alcohol

India has, unfortunately in the past, been afflicted with the views of various medical authorities, who have resided there, these sayings have replaced accurate statistics, and have been copied in the text book, and time tends to show that many of these statements are incorrect or at any rate only partially right, we quote such sayings as, "alcohol is necessary to the healthy existence of a European in the Tropics," "that he should always wear flannel," "that the consumption of opium is harmless," "that typhoid fever is unknown in natives," etc

With much diffidence we quote our own experience

We think that the European does not acclimatise in the tropics, meaning by this, he is able to real healthy, strong children in India, that he is able to continue in the same state of health as he was in on

arrival in the country

Quite apart from the effects of tropical diseases, we think that the European gets debilitated by resi dence in the tropics and at least every four or five years requires a change to a temperate climate. As regards Europeans, Calcutta is one of the most healthy cities in the East, the Europeans live in a well-drained part, and have every convenience of water supply and electric fans, malaria and dysentery are uncommon, and it frequently occurs for them to live periods of several years without any illness at all, yet in spite of this Government and mercantile offices have to give their staffs regular leave home to get full work out of them

The imported European will come out to Calcutta, to a mercantile office at the age of 21 or 22 and the usual commencing salary is £240 a year; the country-bred European can only command half this salary and the Eurasian only a quarter approximately, did the country bred European and Eurasian possess the same ability, mental and moral fibre and capacity for work. he, no doubt, would replace this expensive imported This incapacity, we think, is chiefly due to

the debilitating effects of climate

4 The children of Europeans, who have been sent home when four or five years old for their education, (the customary age) are generally not so fine physically as their parents, owing to the debilitating influence on their constitutions of the tropical climate at an important growing period of their lives

We think it a mistake for parents who have lived in India, to send their children when grown up, to that

country to earn their livelihood, this however, is very commonly done, but we think that it leads to physical degeneration, much less so, of course, than in the case of country-bred Europeans and Eurasians

The chief proof that the European does not acclimatise in the tropics, is his inability to withstand the tropical sun without any head covering, after years of residence in hot climates, he is even more liable to sunstroke than on arrival, this was proved years ago in the army, when it was customary to wear European head diess in the cold weather, this had to be given up owing to the frequency of sunstroke

We would insist that these are only our opinions, they may be modified, they may be wrong, we hope that time will shew some of them to be correct, we mention them

chiefly to provoke discussion

In conclusion, summarising the various points of our paper, we think that we have shewn that—

The native of India is usually a shorter man than

the European

- That height for height, the native weighs the same on an average as the European, there is no evidence to shew that his tissues are any lighter than those of a European
- He is very subject to glycosuria, due probably to his carbo-hydrate diet

4 He is subject to hydrocele the reason for which is not evident

5 Opium and hemp drugs are

consumed by the insuring classes

We think that it will be proved in the future. that their onsumption is not so innocuous as has been believed

### A NOTE ON JUDICIAL HANGING

BY JOHN MULVANY,

MAJOR, IME,

Superintendent of the New Central Jail, Alipore

THE recent article by Dr Wood-Jones in The Lancet (Jan 4th, 1913), and the subsequent correspondence, on the subject of judicial hanging must remind many of us, here in India, of one of the most unpleasant duties we are called on to per for m

That the subject has not received the attention Instantaneous death withit merits is evident out gruesome accompaniments is, of course, the The ideal to be attained is desired result complete severance of the spinal cord by means of fracture dislocation, or simple dislocation of the upper cervical spine

The position of the knot and the length of diop are, undoubtedly, the most important factors in the production of these results, but the thickness of the tope and the physical peculiarities of the

culprit deserve special consideration

Dr Wood-Jones' paper is largely devoted to demonstrating the demerits of the subaural knot and the merits of the submental knot which "should now supersede the subaural knot in our English judicial hangings" The suboccipital knot, causing as it does mere strangulation, is rightly dismissed from discussion. Of the merits of the submental knot I have no expenience, but I hardly think that experiments on a model can Dr Wood-Jones seems to ment much attention think that the submental knot is in vogue in

<sup>\*</sup> The well to do Indian, not the peasant class -Ep , I M. G

India He says "it is used by medical officers upon whom the duty devolves in outlying stations" and the admirable illustration to his article is claimed to be due to the "action of the submental knot"

The series of five specimens on which Di Wood-Jones bases his observations appear to have come from Burma "In every instance the knot was placed 'a little to the left of the chin,' i.e., was a submental knot, or as near submental as the circumstances allowed". It is to be deplored that more explicit details are not given, for it is undoubted that the official knot in Burma, Bengal, and, I fancy, the whole of India is the subarral I quote below verbatim extracts from Rule 997 of The Bengal Jail Code, and from Rule 824 of The Burma Jail Manual. They are

practically identical

(4) "Put the tope found the neck quite tight, the knot or metal eye being just in front of and below the angle of the jaw, so as to run up behind the ear when the man falls and receives Care must be taken to adjust the lope so that the part with the metal eye shall pass in front of the throat The noose should be kept tight, as adjusted, by means of a stiff leather washer on the rope" \* \* \* \* These instructions are too explicit to allow of any doubt of the subauial nature of the knot Moreover, I doubt whether the knot would remain submental even if it were adjusted "a little to the left of the chin ' It would assuredly become subaural, by slipping, at the moment of the jerk ing for myself, I can say that every execution I have superintended has been carried out by means of the subaural knot At any rate, it would be interesting if further details of these executions were published

Tuning now to the question of diop, the following table shows some remarkable varia-

tıons ---

Comparative Statement showing the drops in force in Bengal and Burma and those laid down by Lord Aberdare's Committee

Weight of culprit	England	d Drop	Βι	ırma	Drop	Be	ngal	Drop
1bs 98 100 112 120 126 140 151 160 168 180 182 196 210 224 228 250 250	ft 11 10 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	11 5 0 7 3 0 S 6		ft 10 9 9 8 8	111 6 6 0 6 0 0	<b>}</b>	ft 6 6 5	10 6 0 6

The English drops are based on the energy developed I do not know how the other two

are arrived at. The Bengal scale is, however, so uniformly successful, that there is possibly some scope for reform here

The diameter of the rope must be a factor of great importance. Both Bengal and Burma use ropes of at least one inch in diameter; I am unaware what sized rope is in use in England. The authorities there are extremely reticent in all matters pertaining to executions, and when recently I was studying English prison methods. I was denied even the sight of a gallows. If a rope of less than one inch in diameter is used in combination with a long drop, the gruesome details quoted by Colonel de Zouche Marshall

may, possibly, be explained

The tope in use in Bengal has certain peculiarities which in practice cause the drops used to be only approximate. It is about 11' 4" long and is provided with 5 knots, at an average distance apart of 6 inches, in the last 3½ feet. The longest length of tope available from the knot clamp overhead is about 10 feet and the shortest about 8 feet. The length of tope required must be obtained from one or other of the five knots. The drop required is obtained by means of a formula. The topes of Manilla fibre stretch as much as 3 inches in use. As regards the physical condition, the Superintendent is empowered to vary the drop at his discretion.

Every execution that I Now as to results have superintended has resulted either in dislocation between the 2nd and 3rd cervical vertebræ, or in a fracture dislocation of the 2nd vertebra, the odontoid process remaining in situ In all cases the cord was severed and the neck muscles pulped if not actually divided I cannot say whether the base of the skull was fractured, for I never thought to strip off the dura mater In each case death must have been instantaneous, though the pulse at the wrist invariably continued beating for some two minutes after the drop My own impression is that an even shorter drop would be sufficient to cause death I think the constructing noose essential, otherwise, in the improbable event of the cord not being divided, very terrible results might ensue As it is, strangulation must supervene even if the spine is not bloken I do not think for a moment that there is the slightest chance of anything so unpleasant occurring, but there is the bare possibility, and for this reason it 15 well to be on the safe side I cannot condemn the submental knot as I have no experience of it But it seems to me wrong in principle The subaural knot would seem to have more power against the lateral rigidity of the spine than the submental knot could have against its anteroposterior flexibility The introduction of the chin trough seems to me to add to the horrors of a very gruesome job From my experience of the subaural knot, I cannot bring myself to think that sufficient evidence has been brought against Is it possible that the specimens described by Dr Wood-Jones were in reality the result not of the submental but of the subaural knot?

1 au 180

# CAN CHOLELITHIASIS BE SUCCESSFULLY TREATED WITHOUT OPERATION?

BY T H DELANY, MD, 1 R.C SI,

WAJOR, I WS.,

Civil Surgeon, Saran

ALTHOUGH I am publishing the following note I do so with a certain amount of diffidence I fear the total number of cases I can quote in support of my facts are too few, though, of course, they must necessarily be so, as the disease, to the medical treatment of which I propose to make this contribution, is not a common one in this country

During a term of three years while Civil Surgeon of Shahabad, I treated a number of cases of amæbic hepatitis in the Police Hospital and Charitable Hospital, Airah Practically all of those cases recovered satisfactorily under treatment by ipecacuanha In the course of my noutine duties at these hospitals I had to treat at the same time a certain number of cases of cholelithiasis, the cases being mostly interspersed among a much larger number of During this time, cases of hepatitis deploring the fact that cases of cholelithiasis mostly refuse operation in these parts, and generally have to be relieved of their immediate pain with opium or morphia, I cast found me for some form of treatment that would hold out some hope of effecting more than mere temporary relief of pain I suppose I had some association of ideas induced by the circumstances nariated above, which led me to try the effect of ipecacuanha on cases of gall-stones The cases so treated were at first patients in the Police Hospital, Airah, and they came at such long intervals of time that I had forgotten my experiences of the last cases when others presented I had no idea that a time would themselves come when it would be of interest to have kept In this way I regret to notes of the cases necond that three years passed, during which I treated, to the best of my recollection, four cases of gall-stones with ipecacuanha, the notes of which cases I have to confess I am unable to Indeed, the results in each case were so uniformly good, that I held some doubt in my mind that perhaps these patients after all were suffering from amœbic hepatitis and not cholelithiasis, that in fact I had made a mistake in diagnosis in each case I joined my next appointment early in April 1911, and about a month later a case came under my treatment that decided me to take careful observations in future

Case I—A low caste female, aged about 50 years of age, was admitted into the Chapra Charitable Hospital on the 9th May 1911, in a state of extreme emaciation, with a temperature of 102° F, enlarged liver, intense jaundice, and continuous severe pain in the right hypochondrium that prevented rest and sleep. The outline of the gall-bladder was distinctly visible through

the attenuated abdominal wall as a pear-shaped mass that moved with respiration, and extended to within a short distance of the umbilious. On palpating the gall-bladder a distinct grating feel was elicited by all three of us who examined the case. According to her husband and herself she first got pain over two years before, and then at intervals that have gradually diminished, she has suffered from attacks of extreme pain that were relieved only by opium. Only the more recent attacks of pain have been accompanied or followed by jaundice. The present illness began six months ago with one of the attacks that she had by that time become accustomed to. The pain, however, practically never subsided though it had diminished in intensity from time to time. Jaundice had been present about six months also. She had partaken of very little food for some months, and was very restless with pain, necessitating the use of morphia hypodermically. She gave no history of dysentery for over 20 years.

It would have been quite impossible in her exhausted and emaciated condition to operate on her, even if she consented. In addition to morphia hypodermically she was given puly ipecacuanha gr 1 with puly ipecacuanha co gi 1 every four hours. This she retained fairly well, though there was vomiting at times. The dose of puly ipecac was gradually increased, so that by the 10th day she was taking 16 grs of puly, ipecac, and 8 grs of puly ipecac co within the 24 hours. On May 22nd it was noted that the jaundice was much less, and pain considerably relieved. On the 30th May it was noted that the enlargement of the gall-bladder had considerably subsided. On the 7th June the bowels (previously constipated with hard white stools) were acting apparently naturally with well coloured stools, and by the 14th June (little over a month after starting treatment) the pain had ceased, the eyes were scarcely bile-stained, and the gall bladder could no longer be palpated. By this time she was taking 24 grs puly ipecac, and 8 grs puly ipecac co in the 24 hours, in pills taken every two hours. The progress of the case was steady after this towards recovery. She soon got out of bed, took ordinary food, put on weight rapidly, and left the hospital on foot to go to her home close to the hospital on the 25th of June (one month and sixteen days after commencing treatment). As she lives so close to the hospital I have been able to trace her, and learn that she has been free of illness since she was treated, over one and a half years ago.

treated, over one and a half years ago

Case II—Constable R C N, age 24, was admitted to
the Police Hospital, Chapra, on the 20th February 1912,
for "hepatitis," but was suffering from a typical attack
of hepatic colic, this being his fifth attack within a year
In each of his pievious attacks he had no fever, and was
treated in the bazar for "dyspepsia" In his last two
attacks he had to take opium to relieve his pain He

had had no dy sentery since his childhood

He was now very jaundiced, the gall-bladder region was intensely tender, but the gall-bladder was not felt, owing probably to rigidity of the abdominal muscles. His stools were white, the urine was almost black with bile. The pain was intense, and accompanied with some collapse, temp 97° F, with profuse sweating. He was given puly specac and puly specac co as in the previous case. He never vomited so that the doses of the medicines were rapidly increased.

On the 28th February it was noted that the abdominal rigidity had subsided, but the gall bladder was distinct ly tender on pressure Jaundice was less and the stools were somewhat bile stained, the colour of the urine being almost normal On the 19th March their was no pain or tenderness over the gall-bladder, jaundice had disappeared, the urine and stools were normal Treatment was continued, and he was discharged cured on the 3rd April He has had no recurrence of his illness

Case III — Head-Constable K D T, age 38, was admitted to hospital on the 15th June 1912, with asthmatic symptoms On 22nd June he had a sudden attack of

acute pain in the hepatic region, attended by collapse and profuse sweating, temperature 96 F pulse lunning, and great restlessness with moaning There was no jaundice, and no history of recent dysentely Pain had to be relieved with morphia hypodermically with stimulants. The pain passed off in two days, but was followed by jaundice. Ipecacuanha was prescribed as in the other cases, but on 29th June he had another violent attack of pain that had to be relieved by morphia. Pain ceased in 24 hours but it was noted that jaundice, though it had almost disappeared after the first attack of pain, had again come on, and was intense. The gall-bladder was very tender for some days. On the 29th June he had yet another attack of violent pain as bad as before, that had to be relieved with morphia. Believing that this patient had all along been taking specacuanha I began to doubt the efficacy of the drug, but warned my assistant that the patient might possibly be rejecting it, and I had the patient watched. My assistant set a watch on the patient, and discovered that, instead of taking the medicine, he secreted the pills solled in paper under his mattress. Twenty one pills in all were found hidden in various places. I reproved him for his conduct, in explanation of which he stated that the medicine caused him "heat in the stomach" and nausea, and he did not like to take it. Smaller doses of specacuanha were prescribed, and administered personally by my assistant, with the result that the patient sapidly recovered, and was free of jaundice, and pain by the 25th July. He was discharged cured on the 27th August, and has been free of symptoms up to date

Case IV—T C R, age 23, Native Christian, a relative of the Lady Doctor here, had been suffering from typical attacks of hepatic colic for one and a-half years. He had at least thirty attacks of colic before his present illness, and during each attack had to be relieved with opium or morphia, each attack varying in duration from a few hours to a few days. Each attack was typical in the intensity and site of pain, the latter attacks being accompanied with intense jaundice. There was no history of recent disentery. Latterly when attacked with pain he had himself treated in various hospitals where morphia was invariably administered. At the time of his present illness he was employed in Calcutta in a business firm as a clerk, and after some weeks'illness in his lodgings he was taken to one of the large hospitals in that city, where it was decided after seven days' observation to operate on him Learning one night that he was being prepared for operation next day, he left the hospital at once without permission, and was brought to Chapra after some time by the Lady Doctor who had gone to Calcutta to see him.

On arrival here on the 27th July 1911, he was in a very emaciated state. Highly jaundiced, doubled up with pain, and with a temperature varying between 102°F and 104°F. The liver and spleen were enlarged, the gall bladder enlarged to the size of a large orange below the costal arch, and he was markedly emaciated and exhausted. The Lady Doctor had seen and superintended the treatment of the case I above mentioned and undertook, under my supervision, to treat the patient with specacuanha, with the help of the Assistant Surgeon. The patient stood large doses of specacuanha well from the beginning. I saw him again on the 8th August, and immediately noticed a great change for the better in his appearance, and improvement in all the physical signs. He was much relieved of pain, and the temperature had not risen above 995°F for the last two days. I had him weighed, he was only 94lb, though he was 5ft 6 in in height. The treatment was carefully followed out as indicated by me, and in 14 days and physical signs was apparent. The jaundice had much diminished, the pain had ceased though tenderness was present over the region on the gall-bladder, the had put on 13½lb in weight, jaundice had practically

disappeared, he ate well and slept well, and was altogether a different man to what he was when first I saw him. He continued the treatment for five months in all, with occasional sets back in his condition, and at the end of that time was completely restored to health. He now weighed 9st 6lbs, an increase of almost three stones since the first weighment. I have frequently seen him since his recovery, he is in robust health, and is earning his living as a clerk once more. I cannot refrain from stating that this man's recovery was believed to be impossible by everyone who saw him on his arrival here.

Case V—This patient died, but his case, I consider, affords negative proof of the utility of ipecacuanha in cholelithiasis, and exemplifies a type of patient one may come across

Constable B B L, aged 33 years, was admitted into the Police Hospital, Chapra, on the 11th July 1912, with typical symptoms of gall-stone colic. He had had many previous attacks, the present illness dating from the 15th June. He was very jaundiced, had an enlarged gall bladder, and temperature of 102 F. He was given specacuanha like the other patients, but vomited it incessantly from the outset. No matter in what form, or in what combinations, he vomited incessantly, if given even small doses of specacuanha. All attempts to administer the drug had to be given up, and the patient refusing operation died with symptoms of septicæmia on the 13th September.

As to the doses of specacuanha prescribed in those cases, they would not be considered great by practitioners in the tropics who are accustomed to using the drug in dysentery, liver abscess, and hepatitis. The drug is vomited at first in most cases, but this can usually be arrested by combining it with some preparation of opium, though cases will be met with, as in case V quoted above, in which the susceptibility is uncontrollable. In such cases I would, in future, try the effect of emetine as recommended by Rogeis by the hypodermic method

I am publishing this note as a mere statement of facts, without offering any theory of the action of ipecacuanha in cholelithiasis. I have, it is true, a theory based on the antiseptic action of the drug on the bile, but my object in publishing this note is to endeavour to induce my professional confrères to try the treatment which is perfectly harmless in suitable cases, especially in the case of those who are unfit for or refuse the operative treatment. If I succeed in doing this, I feel I shall have attained the object of this note

# A Mirror of Sospital Practice.

NOTES ON 100 CONSECUTIVE LAPARO-TOMIES PERFORMED FOR PYO-SALPINX IN THE CIVIL GENERAL HOSPITAL, RANGOON

BY C BARRY,

MAJOR, IMS

THE attached list shows the results of one hundred consecutive abdominal operations for

pyo-salpinx performed on patients under my charge during a period of two years

Such conclusions, however, as I have ventured to draw are founded on a considerably larger number of such operations performed in previous years, of which I have not now the notes, and on the observation of cases occurring in other surgeons' practice at the Rangoon General Hospital

I publish these results because I believe cases of pyo-salpinx are exceptionally common in the seaport towns of Burma, owing to the prevalence of venereal disease possibly more so than in other similarly situated towns in India It seems likely therefore the Rangoon General Hospital may have an experience that will be useful to other institutions in towns where pyosalpinx may be less commonly met with

The vast majority of the cases were due to gonococcic infection, the remainder were due to infection of a puerperal nature chiefly arising from abortion. A bacteriological examination was made in those cases in which it was found possible to enucleate the pus distended Fallopian tube entire, so that the specimen could be sent direct to the laboratory without fear of accidental contamination.

Fifty-six specimens were thus examined, of which thirty-two were pronounced sterile. In fifteen cases gonococci were stated to be present and in four cases cocci resembling gonococci. As the diagnosis rested chiefly on the microscopical appearance of the organism and cultivation experiments were not carried out except in two cases, I think, the actual presence of virulent gonococci in such a large number of specimens is doubtful

Eighty per cent of the patients operated on were between the ages of 20 and 30, this appears young, but it must be remembered the vast majority were Natives of India and Burma, who commence sexual life at an early age. The youngest patient was aged 16 years and the eldest 49 years

In sixty-nine cases, the Fallopian tubes were so disorganized that both had to be removed, showing how often uterine infection spreads to both tubes, and in doing so produces sterility more especially as of the thirty-one cases in which only one Fallopian was removed, it was in many cases extremely doubtful if the tube left untouched was patent

From a surgical point of view, the nature of the infection which produces the pyo-salpinx is of the greatest importance, for in the majority of the cases due to gonorrheal infection the pus becomes sterile, and to this fact is due the success of operative measures on the Fallopian tubes. How long the bactericidal power of the tissues takes to produce death or effective attenuation of gonococci within the Fallopian tubes is uncertain.

Clark and Monns place it as usually from 2—4 months. In two cases in the above series gonococci were cultivated after what was probably a considerably longer period, i.e., 6—8 months, but the fact remains that collections of pus due to gonorrhæa may as a rule be safely operated on without fear of infecting the general peritoneal cavity

When a pyo-salpinx, however, is due to puerperal infection the story is quite different, the pyogenic organisms associated with these cases retain their virulence for long periods and the danger of infecting the general peritoneal cavity must be constantly kept in mind, more especially if in operating a collection of pus is ruptured

Six cases out of the 100 operated on died, four of peritonitis and two of pulmonary embolism I believe this percentage of mortality is about the average of most operators The cases were taken consecutively, and there was no selection of cases, almost all the cases were complicated by numerous and dense adhesions, for native women do not as a rule seek surgical relief for then ailments unless the pain is real and of long standing, or if of recent origin unless the pain is The majority of the patients came very acute for relief from pain of long-standing which had quite incapacitated them from following their occupations and household duties

The treatment of pyo-salpinx amongst native females is almost entirely operative. It is an undoubted fact that a large number of acute and a considerable proportion of chronic cases of pyosalping may be cured by complete rest combined with suitable minor treatment In the Rangoon General Hospital it is chiefly chronic cases that we have to deal with, to effect a cure in such cases very prolonged test is necessary and this is what the native patients will not consent to, as soon as the immediate pain of her ailment is better, she insists on leaving hospital as is probable the pain ieturns, she blames our treatment as useless and turns to native remedies, or possibly returns to hospital at a later period with her disease far advanced and her constitu-This reluctance and often tion undermined inability to stay in hospital for a long period induces us therefore to advise operation more freely than would be the custom in English The native patient requires a cure hospitals and one in the shortest possible time, and she also demands that any operation carried out must be complete and performed once and for all With these points in view, whenever possible, I believe it is best to enucleate the pus-distended tubes by abdominal section, especially as native patients are also intolerant of the long convalescence and repeated painful dressings which accompany the alternative method of vaginal drainage Still great care must be taken in deciding what

cases are really suitable for extirpation by the abdominal loute, with increasing experience many collections of pus which at first sight appear impossible of safe iemoval will be found by careful and cautious work to be capable of complete enucleation On the other hand, I am certain that the large majorities of fatalities which have occurred in my own and in other surgeons' practice, I have had the benefit of observing, have been due to attempting to remove abdominally a pyosalpinx that should have been dealt with by vaginal drainage only It is often not easy to recognize by vaginal examination what cases are unsuitable for abdominal operation, but experience enables one to gain an impression of the pelvic conditions which is real though difficult to Roughly, in cases suitable for vaginal drainage, only the 100f of the vagina will be found hard and resistant with the feeling that it is incorporated into the pelvic mass, the mass itself having little or perhaps no mobility on bimanual examination The uterus also will be fixed and its outline obscured Rectal examination (which should never be omitted) will confirm the abovementioned conditions and will also often disclose a ring of induration extending backwards round the rectum which is of great diagnostic importance

Even after deciding that an abdominal operation affords a good prospect of successful enucleation of the pyo-salpinx, direct examination of the pelvic conditions through the abdominal incision may leveal such matting and adhesions as to render the completion of the operation a matter of great danger In cases such as these, there should be no hesitation in closing the abdominal wound and proceeding to drain the pus collection by the vaginal route In coming to this conclusion adhesions to the intestines, uterus or bladder are not so much of importance as those deep down at the side of the pelvis The former adhesions can as a rule be well brought into view and dealt with in the full sight of the operator, but it is deep down out of sight at the side of the pelvis that laceration of the internal iliac vein or uneter may occur with disastrous results In the former case there will be copious hæmonhage most difficult to check at the bottom of a ragged cavity which itself is capable of readily absorbing any septic infection On the other hand, if a tear of the ureter occurs, there is considerable danger that it will not be observed and that subsequent leakage of urine will set up fatal peritonitis

Examination of the course of the ureter in a female cadaver will disclose how readily this duct may become adherent to a pyo-salping spreading outwards to the pelvic wall between the layers of the broad ligament, and I have come to look on adhesion to the ureter as one of the greatest dangers in operating for pyo-salping and the probability of wounding this duct one of the chief

determining points in favour of abandoning the abdominal route and proceeding to deal with the case by vaginal drainage only. If then after abdominal section the pyo-salpinx is found large and firmly adherent to the lateral wall of the pelvis, it will be wisest to abandon an attempt to enucleate the collection of pus abdominally and closing the abdomen to proceed by the safer but perhaps less satisfactory vaginal route.

I would mention that during the period these 100 abdominal operations for pyo-salpinx were performed, twenty-six cases were dealt with by vaginal drainage only

The difficulties met with in operating vary of course enormously, as met with at the Rangoon General Hospital complicated cases are the rule Most of the patients are Natives or Eurasians, these classes of patients are fearful of operative measures, and as a rule do not consent to surgical interference unless the pain is severe or of long-standing

The most essential point in operating is by a sufficiently long abdominal incision (4-5 inches) and by the Tredelenburg position to obtain a thorough view of the parts to be operated on All adhesions must as far as possible be separated in full view and any tears to important organs dealt with at once If these precautions are observed, the operations lose most of their dangers and tears of such organs as the intestines and bladder may be safely got over The danger lies m separating adhesions in the dark and being unaware of what damage has been unknowingly It is for this reason that I look on a pyosalpınx adherent deep down to the lateral wall of the pelvis with much apprehension It is nearly impossible to get a good view of the parts when separating adhesions and the ureter may unwillingly be wounded with disastious results Such cases as these require the greatest caution and a most thorough examination of the parts when the pyo-salpinx has been enucleated difficult cases I find the landmark to be first searched for and identified in the fundus of the uterus, and I would warn operators from proceeding with an operation till this landmark has been satisfactorily recognized, not always a proceeding as easy as it sounds Next, I would suggest the identification of the round ligaments and then the infundibulo-pelvic ligaments When once these parts have been recognized, the altered geography of the pelvic contents can generally be understood and the operation carried out in a systematic and orderly manner Working haphazard without a definite idea of the true relation of the pelvic contents is frequently followed by disastrous results

In operating for double pyo-salpinx, I believe, it is often good practice to remove the uterus

also In many of these cases the uterus is displaced and fixed out of its normal position by firm adhesions, the separation of which leave raw patches on the surface of this organ which are incapable of being recovered with peritoneum, the uterus is therefore likely to become adherent again to the pelvic contents, and since the unavoidable mutilation of the broad ligaments has deprived it of its natural supports. The fundus is very liable to drop backwards and become adherent low down in Douglas' pouch, should this happen, the operation as judged by its ultimate results is likely to be a failure

Again, when once both tubes are removed, the uterus remains a useless organ and frequently a chronically infected one, giving rise to much trouble and discomfort. Its removal, on the other hand, renders the operation complete, and it has been my experience completely rids the patient of all further trouble. Menstruation, of course, ceases, and this to a native mind is a very important and regrettable factor, but is really a small price to pay for future immunity from severe dysmenorrhæa and other pelvic trouble.

It is important, however, to decide from the commencement of the operation if the uterus is: to be removed or not, and then to proceed on the ordinary set lines for this procedure By thus early making up one's mind the operation is often rendered much easier, especially when adhesions The operation should be are numerous and firm commenced on the least affected and adherent tube, working along beneath the pyo-salpinx to the cervix of the uterus. After securing the uterine artery the cervix is cut across and the uterine artery of the opposite side then made The task of dealing with the remaining pyo-salpinx will now be found greatly simplified and the collection of pus can often be shelled out between the layers of the broad ligament with astonishing ease.

As regards the ovaries, whenever possible they should be preserved. It may be possible to save only one or even only a piece of one, but any portion of ovarian tissue preserved is of great importance to the patient, and both ovaries should never be removed except in cases where they are so completely disorganized as to be a danger to the patient.

I believe the more ovarian tissue that can be left, the greater will be the subsequent comfort to a patient who has not reached the menopause. but in thus conserving these organs a careful study of their condition at the end of an operation must be made. It is no good preserving an ovary whose blood supply has been hopelessly damaged, and this is an important point to keep in mind at the commencement of an operation when fixing the ligatures preparatory to the removal of a pyo-salping

The position of the ovary at the end of an operation must also be carefully considered, and if necessary, it must be fixed by sutures as nearly as possible in its normal position. If this precaution be omitted, the ovary may prolapse into Douglas' pouch and become adherent, and thus give rise to so much trouble as to destroy the benefit of the operation. In short, before closing the abdomen the altered position of the various pelvic organs must be carefully studied and every effort made by the necessary sutures to replace them in their normal position.

In nineteen cases hysterectomy was combined with removal of both tubes, one death occurred from pulmonary embolism. It has been lately pointed out by Sir John Bland Sutton that pulmonary embolism is especially likely to occur after hysterectomy on an infected uterus, and I am of opinion that it is best not to combine this proceeding in operating for pyo-salpina of puerpeial origin. If necessary a ventro-fixation can be carried out provided great care is taken in passing the supporting sutures that they do not enter the uterine cavity

Operations for pyo-salpinx should not be undertaken in the acute stage unless there is some very urgent reason for so doing Rest and treatment will often get a patient well without an operation, or at any rate by allowing time for the virulence of the infection to subside, diminish the dangers of operating enormously.

As previously stated, it is almost impossible to persuade a native patient to stay long enough in bed to become cured of a pyo-salpinx, but it is possible to insist on complete rest till the acute symptoms have passed off, and this should be done in every case

If, however, operation in the acute stage becomes imperative, I believe the wisest plan is to do as little as possible that is, the tubes must be enucleated with the least possible disturbance of adhesions and a drainage tube left in the pelvis. No such operation as removal of the uterus should be attempted. It must be recognized the diseased parts are in a highly infective state, and the greatest care taken in effectually packing off the rest of the abdominal cavity at the time of the operation.

As regards the after-treatment of these cases, the patient is invariably placed in the Fowler position for the first 36 hours subsequent to the operation and to do this satisfactorily a special jointed bed frame is necessary. Saline enemas of 1 pint each are given every 4 hours for the same period, if there is much shock, half an ounce of brandy is added to each enema. The amount of urine passed is carefully measured and charted and the pulse and temperature are

taken every four hours and charted on a combined I would much recommend the combined charts showing the pulse curve, as well as the temperature curve in serious cases, the pulse rate can be taken every hour and its variations can be seen at a glance It is the smest way of drawing attention to that very characteristic precursor of peritonitis a steadily using pulse Morphia is as a rule withheld, Aspirin grains 10 being given to allay pain, this drug in the large majority of cases is all that is neces-Morphia hypodermic injection grain 1/6 is occasionally used, and in suitable cases is of the greatest benefit Some patients, natives especially, are very restless and hysterical after abdominal operation, and in these cases morphia in small doses acts well I have found patients who were incapable of retaining saline enemas quiet down and retain them in a most gratifying manner after the administration of 1/6 of a grain of morphia hypodermically

As long as the saline enemas are retained, the patients do as a rule well, in serious cases where no enemas can be retained, good results have been obtained by subcutaneous injections of saline into the cellular tissue in the flanks or under the breast, 3—4 pints being slowly run in A purgative is as a rule given 48 hours after the operation. I have never seen any harm from doing so, and if there is any distension. I give a purgative earlier. Should symptoms of approaching general peritonitis occur, there must be no delay in opening up the wound after a rapid search for the cause placing drainage tubes in the flanks and pelvis.

Finally it is necessary to deal with the fatal cases at length Disappointing as they are to the surgeon, they afford an object lesson and a means of learning what mistakes to avoid, if possible, in future The first case No 33 is an example of the undesirability of operating when a pyo-salpinx presents acute symptoms and also of the great difference of infectivity between a pyo-salping due to streptococcic infection and one of gonorrhead origin In this case the cause of the tube infection was an abortion in all probability a criminal one The patient presented acute symptoms and the intention was to delay any thought of operating the symptoms increased, however in severity and signs of approaching general peritonitis appeared Laparotomy was therefore performed Both tubes were found distended with pus curled on themselves and adherent to the uterus and broad ligaments by recent adhesions, their removal was very easy and the operation did not take more than 20-30 minutes, the tubes being amputated into the uterus and a dramage tube being inserted into the pelvis and brought out at the abdominal The patient died 24 hours later with symptoms of general peritonitis. From the tubes removed streptococci in short chains were isolated

In my opinion the mistake made was in removing the tubes, adhesions were bloken down and the general peritoneal cavity received a dose of streptococci too large for its powers to deal with. In a similar case, I would recommend simple drainage of the abdominal cavity, the Fowler position and three hourly saline enemas, the patient would have a good chance of recovery and the diseased tubes could be dealt with later

The next two fatal cases No 45 and 46 are of the nature of a surgical catastrophe laparotomies were down for that morning's operations, all pyo-salpiny In two cases, the cause of the pyo-salpina was thought to be gonorthoa, in the third, the tube infection could be traced to an abortion two months previously Owing to some misunderstanding, the latter case was first anæsthetized and so operated on first It was a difficult case and one of pyo-salpinx was suptured in its removal The patient recovered after a long and stormy convalescence The two following cases presented no special Both the pyo-salpinx cases were of long standing, and there seemed no reason why the patients should not have done well Nevertheless they both developed general peritonitis and died within two days of the operation no doubt in my own mind both these cases were infected from the first case, how I cannot say with certainty probably from the operator's hands as unfortunately the supply of India-rubber gloves had run short, an expected supply had been delayed and none were obtainable locally The possibility of infection was fully recognized both by my assistant and myself, and our hands underwent a most prolonged cleaning between These fatalities emphasize the each operation extreme infectivity of a pyo-salpin's following on a recent abortion and the necessity of the use of India-rubber gloves They also demonstrate the necessity when planning a morning's operations of taking the least infective cases first, had this been done, I believe the lives of both these women would have been saved

The fourth fatality No 48 was due to a wound \_ of the ureter which was not recognized when The patient lived for six days and operating developed general peritonitis, but the symptoms came on so gradually and at first were so mild, the true importance of them was not properly estimated On the fourth day dramage tubes were placed in the flanks and pelvis, but it was too Post mortem—the left ureter was found perforated by a small incised wound tion had been a difficult one, the pyo-salpinx on The operathe left side was a large one, had widely separated the layers of the broad ligament and was firmly dherent to the lateral wall of the pelvis. I

remember some of the adhesions were divided with scissors, and in doing this no doubt the uneter had been wounded It is in cases of this nature that very great care is necessary, and I look on adhesions to the lateral wall of the pelvis along the course of the ureter as the most dangerous and difficult of all met with in these operations to deal with As is my custom in all abdominal operations the patient was placed for the first 36 hours in the Fowler position with saline enemas four-hourly, and it is to this treatment I attribute the slow onset of peritonitis Had the opening in the ureter been smaller, it is possible she might have recovered, for, in a similar case No 81, the same accident must have occurred This patient developed pelvic peritonitis after operation followed by a large swelling in the left iliac fossa which on being opened later proved be an urinary abscess, a urinary sinus resulted which gradually closed after prolonged diamage

The fifth and sixth cases illustrate the danger of pulmonary embolism following operations for pyo-salpinx, especially when the infection is of puerperal origin. Both patients died suddenly on the third day after the operation having up to that time progressed favourably without symptoms of peritonitis. In both cases also the pyo-salpinx was of puerperal origin.

These cases of death from pulmonary embolism are of great importance in consideration of the question of removal of the uterus when operating for double pyo-salpinx Sn John Bland Sutton has recently written an article in the British Medical Jownal that has such an important bearing on this subject that I feel I cannot do better than quote largely from it Sn John Bland Sutton clinically divides uterine infection into two groups, puerperal and non-puerperal former group the streptococcus is the dominant organism and in the latter the gonococcus "Both organisms cause destructive changes in the tubal tissues, but die out, and there is later nothing in the lesions which enables one to say whether the trouble began as a puerperal or a non-puerperal infection" This bactericidal power of the tissues explains the success which attends surgical enterprises on the Fallopian tubes and the uterus when they are damaged by chronic Sir John Bland Sutton felt it necessary to again enquire into the micro-organism of the uterus in order to seek an explanation for the extraordinary frequency with which pulmonary embolism occurs after hysterectomy for fibroids and for cancer whilst it is unknown to him after operations performed for lesions due to the gonococcus

As a result of investigations he finds that amongst nulliparous spinsters with fibroids the uterine cavity and cervical canal are sterile i

practically all cases, whilst in married women who have had children and in whom the mouth of the womb is patulous staphylococcus, bacillus coli, and Doderlein's bacillus occur

The article goes on to point out that during the performance of hysterectomy a septic uterme cavity may cause thrombosis either of the ovarian and iliac veins by direct infection of the sutures securing the uterine stump or the cut end of the vagina, or of the femoral vein indirectly through builed sutures in the abdominal wall In this latter case the septic stump of the uterus infects the surgeon's gloves and through them the buried sutures used in closing the abdominal wound From these sutures thus infected thrombosis is slowly propagated along the epigastric veins to the femoral artery Once thrombosis of the larger verns has occurred, pulmonary embolism is an alarming possibility and may occur any time from within an hour of the operation onward to the thutieth day

The deductions, drawn in this excellent article as true for hysterectomies performed for submucous fibroids, apply also, I believe, with still greater force for hysterectomies performed as part of the operation for removal of double pyosalpinx in all cases in which the uterus remains How often the uterus is infected in But experience such cases it is difficult to say has taught me to look with great suspicion on all uten in which the origin of the pyo-salpinx can be traced to puerperal causes, and I believe in such cases hysterectomy should not form part of the operation performed for the cure of the The appearance of the uterus as seen at the time of the operation affords, I think, a rough clinical test In the majority of cases of pyo-salpinx due to gonococcic infection, the uterus is firm and not markedly enlarged, but in cases due to streptococcic or some such allied infection the uterine tissue is flabby and the uterus itself considerably enlarged, if these latter conditions are present, the organ is best left In case No 87 this enlarged and untouched flabby condition of the uterus was very marked, I remarked on it at the time and debated as to the wiseness of removing the organ I did nemove it and pulmonary, embolism resulted, with further experience I should have left it alone

Hysterectomy, as part of an operation for removal of double pyo-salpinx, is often a useful and beneficial measure, it yields more perfect results and often renders the operation more easy to perform. If the pyo-salpinx is of puerperal origin, hysterectomy greatly increases the danger of the operation, on the other hand, if the pyo-salpinx can be traced to genoriheal infection only, I have not found this proceeding has increased the operative dangers at all,

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The after-results of these operations have been satisfactory. It is very difficult to keep in touch with native patients after they once leave hospital, but all the patients were told to report themselves monthly after leaving the hospital, and a considerable proportion have done so

Dysmenoi hoea seems to be the most likely trouble to remain uncured. One patient suffered so severely that I re-opened the abdomen and performed hysterectomy. The uterus was found

retroverted and adherent in Douglas' pouch, she was cured of all trouble and discomfort by its removal

Those cases in which hysterectomy was combined with the removal of both tubes yielded excellent results. Two cases returned to be operated on for ventral herma. As a rule the patients, when seen some three months after operation, had improved in general condition very markedly.

Operation for Suppuration in the Pelvis

Vo	Race	Age	Disense	One or both Fallopian tubes	Opera	ation	Result	Bacteriological Examin	REMARKS
17 18 19 20 21 22 23 24 25 26 27 28	Bui mese Hindu Burmese Do Hindu Bui mese Hindu Do Bui mese Do Mahomedan Bui mese Lindu Bui mese Lindu Bui mese Do Hindu European Bui mese Eurasian Hindu Bui mese Do Do Do Do Nahomedan Hindu Bui mese	22 22 27 22 25 31 26 30 19 35 20 20 40 26 30 27 40 44 30 25 31 36 37 40 38 44 30 31 31 31 31 31 31 31 31 31 31 31 31 31	Pyo sulpin \ Do Do Do Do Do Do Do Do Do Do Do Do Do D	Both One One Both Both One One Both Both Both Both Both Both Both Both	Do Do	right tube left tube both tubes do right tube left tube do both tubes right tube both tubes do do light tube both tubes do do light tube do both tubes light tube do both tubes do do left tube right tube	Do Do Do Do Do Do Do Do Do Do Do Do Do D	Sterile Sterile Cocci resembling pneu mococci Sterile Intra cellular cocci suspiciously like Sterile gonococci Gonococci present Sterile Do Intra cellular cocci in large numbers A few doubtful gono cocci Intra cellular cocci re sembling gonococci	Fæcal fistu which eve tually close
- 1	Hindu Mahomedan	28 20	Pyo salpınz Do	Both One	Removal of 1 Removal of 1	ooth tubes	Cured Do	Intra cellular cocci re	without ope
- 1	Other caste	20	Do	1	Removal of 1		-	Sembling gangagas	
6	Burmese Other caste Mahomedan	20 30 25	Do Do Do	One One	Removal of 1 Removal of 1 Removal of 1	ight tube	Cured Do	Stieptococci in large numbers Sterile Do	General per tonitis
- {	Bui mese	23	Do	Both	$\mathbf{D_0}$	do	Do Do	A few diplococci un like gonococci	
	Other caste Hindu Other caste	18 21 20	Do Do Do	Both Both Both	Do Do	do do	$\mathbf{D_0}$	Gonococci present Sterile	Rectum wound
	Hindu	22	Do	1 1	Removal of b	oth tubes	Do	Gonococci pi esent Do do	
<u> </u>	Do	25	$\mathbf{D_0}$		Removal of b	oth tubes	Do		
; ;	Do	30	D <sub>0</sub>		Removal of and left over	left tube	Do		
-	Do	21	D <sub>0</sub>	1 - 1	Removal of b and hystere Removal of b	oth tubes	Do		

## Operation for Suppuration in the Peliis - Contd

No	Race	Age	Disease	One or both Fallopian tubes	Operation	Result	Bucternological Fxamin	REMARKS
45	Buimese	46	Pyo salpınx	Both	Removal of both tube	Died		Septic perit
46 47	Do Other caste	34 25	Do Do	Both One	and hysterectomy Removal of both tube Removal of left tube	Cured		nitis Do
48	Mahomedan	25	Do	Both	Removal of both tubes			Uneten woun ed, peritor
49 50	European	20	Do Do	One Both	Removal of right tube Removal of both tubes			tis
51	Burmese Do	33	Do	One	Removal of right tube			
52 53	European Hındu	20 22	Do Do	Both Both	Removal of both tubes Removal of both tubes	ı Do	Gonococci present Do do	
51	Do	22	Do	Both	and hyterectomy Removal of both tubes	$\bigcup_{\mathbf{D_0}}$	Do do	1
55 58	Other caste	16	Do	Both	Do do	Do	Sterile	
58 57	Hındu	19 38	Do Do	Both Both	Do do Do	Do Do		I
58	Buimese Hindu	20	Do	Both	Do do	Do	Sterile	
59	Burmese	19	$\mathbf{p}_{\mathbf{o}}$	Both	Do do	Do	Gonococci present	j
60	D <sub>0</sub>	20	Do	Both	Removal of both tubes and hyterectomy	1	Sterile	
61	Hındu	24	Do	Both	Removal of both tubes and hysterectomy	\ _		
62 63	Burmese	18 19	Do 1) o	Both Both	Removal of both tubes Do do	Do Do	Gonococci present	
64	Do Hındu	30	Do	Both	Removal of both tubes		$\mathbf{D}_{0}^{0}$	
65	Do	30	Όο	Both	and hysterectomy Removal of both tubes	Do	Sterile	
66	Do	30	$\mathbf{D_0}$	Both	Removal of both tubes and hysterectomy	) <u></u> -	1	
67 68	Burmese Hindu	38 38	Do Do	One Both	Removal of left tube Removal of both tubes	Do Do	Sterile	
69	European	24	Do	Both	and hysterectomy Removal of both tubes		$\mathbf{p}_{0}$	
70	Bui mese	21	Do	Both	Removal of both tubes and hysterectomy	Do	Do	
71	Hindu	35	Do	One	Removal of left tube	Do	$\mathbf{D_0}$	}
72 73	Do Mahomedan	28 39	$egin{array}{c} \mathbf{D_0} \\ \mathbf{D_0} \end{array}$	Both Double	Removal of both tubes Removal of both tubes		Gonococci present Do	1
74	Burmese	31	Do	Double	and hysterectomy Removal of both tubes	Do	Sterile	
		33		Double	and hysterectomy Removal of tubes and	Do	Do	}
75	$\mathbf{D_0}$	33	Do	Double	one ovarv			1
76 77	Hındu	30 49	Do	One One	Removal of right tube	Do Do	$egin{array}{c} \mathbf{D_0} \\ \mathbf{D_0} \end{array}$	}
78	Bui mese Hindu	30	Do Do	Both	Removal of both tubes	Do	Do	
79	Burmese	17	Do	One	and hysterectomy Removal of right tube	Do	Gonococci piesent	
80	Other caste	26	Do	Both	Removal of both tubes and hysterectomy	Do	Sterile	
81	Do	39	$D_0$	Both	Removal of both tubes	Do	$\mathbf{D_0}$	
82	Do	29	Do	Both	Removal of both tubes	Do	$D_0$	]
83	Mahomedan	20	$\mathbf{p}_{0}$	Both One	Do do Removal of left tube	$\begin{array}{c c} D_0 \\ \end{array}$	Gonococci present Sterile	1
84 85	Hındu Do	20 21	Do Do	Both	Removal of both tubes	Do	Do	
86	$\mathbf{D_0}$	22	Do	Both	Do do	Do	•	<b>n</b> .
87	Eurasian	28	Do	Both	Removal of both tubes and appendix and	Died		Pulmonary em bolism
88	Burmese	45	Do	Both	hysterectomy Removal of both tubes	Reliev	Sterile	
89	Do	17	Do	One	and left ovary Removal of right tube	Cured	$\mathbf{D_0}$	
<b>9</b> 0	Do	31	Do	One	Do do	Do	i	
91	Hındu	22	Do	One One	Removal of left tube Do do	Do Do		
92   93	European Other caste	22 16	Do Do	One	Removed	Do		
91	Burmese	28	Do		Removal of the tubes	Do Do	Ctomle	Ventro fixation
95 96	Hındu Do	27 30	Do Do		Removal of both tubes Removal of left tube	טט	Sterile Do	**
		24	Do	One	and ovary Removal of tubes	{	Do	
	Mahomedan Burmese	21	Do	One	Do	Ì	Do	
99	Do	23	Do	1	Removal of both tubes and hysterectomy			
00	Eurasian	27	Ъо	Both	Removal of both tubes	Died.	1	Ventro fixation pulmonary embolism

# Indian Medical Gazette.

MAY

# THE FLEXNER REPORT ON MEDICAL EDUCATION \*

This exceedingly valuable report is one which can be strongly recommended to our readers and to those responsible for medical education in all countries

It is written by Mr A Flexner, who had previously reported on medical education in the United States and Canada, and there is no doubt that for years it will remain a landmark and a guidance for legislators

There is nothing narrow or petty about this truly great report. It recognises that the education of the physician is primarily an educational matter, and that professional teaching is absolutely dependent upon the general educational system of the country.

For all of us who are interested in medical education in India the report is full of valuable lessons

The report recognises the burden which modern science has laid upon students of medicine "The medical curriculum in Europe has reached its capacity, it can contain no more"

The report comments strongly upon the varied conditions upon which medical practice in the United States may be entered upon. The obligation to fix reasonable conditions is insisted upon as it is "only by effective legislation that the general public can be adequitely protected from exploitation by an army of ill-trained doctors, quacks and charlatans"

The following description of medical education in some parts of the United States is severe, and the moral should not be lost on those who wish to start ill-equipped and unrecognised schools in Calcutta and Bombay

"In no foreign country is a medical school to be found whose students do not learn anatomy in the dissecting room and disease by the study of sick people. It has remained for the United States to confer annually the degree of doctor of medicine and to admit to practice hundreds who have learnt anatomy from quiz-compends and whose acquaintance with disease is derived

not from the study of the sick but from the study of text-books"

The following plain speaking is deserving of

"Managers of teeble medical enterprises in our country pretend that they are making great sacrifices for the public good. This hypocritical pretence ought not to be permitted longer to damage the public interest. No medical school that lacks proper facilities has any other motive than the selfish advantage of those that carry it on

our duty is to set up and maintain a single standard in respect to preliminary education, laboratory and chemical facilities, professional education and examination, and this in the public interest only "

Lately in India the cry has been laised for a

cheaper and inferior class of practitioner for rural This plea has been used in the United States, and the present report has handled very severely that view -"Whenever (says the Report) a proprietary medical school has been attached this claim is put forward—and it has become fixed in the minds of laymen" This plausible plea is rapidly demolished-" As a matter of fact (we read (p avr) in the Report) statistics prove that no physician, poorly equipped or wellequipped, will go where a livelihood cannot be gained of all men who deal with human illness the country physician needs to be the best trained—he is far from the specialist, he is without the facilities of hospitals it is particularly essential that the country physician should have a broad and thorough training the problem of furnishing proper medical aid cannot be solved by producing a special and cheaper brand of doctor, for the cheaper doctor will go where he can do better pre-

We have heard of such arguments being used of late in India But the conditions are the just the same as in the United States and the reply is Even if new medical schools are subas above sidised to produce the "cheaper brand of doctor" will the public benefit? No, the cheaper man will not stay in the mofussil, where undoubtedly medical aid is needed He will go to the nearest town, be it big or small What India wants is not cheaper (ie, inferior) education for its medical men, it wants more good men, and good medical men are produced not by competition between small and ill-equipped schools, but by a thorough course of genuine training at one or more large well equipped and well endowed

cisely as the more highly trained man will do"

<sup>[\*</sup> A report by Abraham Flexner to the Carnegie Foundation on Medical Education in Europe. It should be noted that the writer is not a medical man —ED , I M G ]

institution A Sanitary and Medical Service well educated and endowed by the State is, this report states, the remedy We have this in India and we must extend it, but we should not lower the standard of education cheap and inferior brands are not wanted

#### NATIVES OF INDIA IN THE IMS.

The Gazette of India of 15th February 1913, notified that Colonel G W P Dennis, IMS, Inspector-General of Hospitals in the Central Provinces, is granted leave, and Lieutenant-Colonel H E Banatvala is appointed to act in that office This notification is of interest, as being the appointment of an Indian member of the IMS to act in the administrative grade, and as Inspector-General of Hospitals in an Indian Province No Indian has ever yet obtained permanent promotion to the rank of Colonel and Office of Inspector-General, but Lieutenant-Colonel E P Frenchman, CIE, officiated in the same post in Burma in 1909

The East India Company always insisted strictly that all officers appointed to the I M S should be of pure European extraction, until by the Indian Act of 1853, Acts XVI and XVII, Vict, cap 95, admission by competitive examination, open to "all natural born subjects of Her Majesty," was introduced. The first competitive examination was held in January 1855, when the list of successful candidates was headed by S C G Chuckerbutty, a Bengali Christian, who had been one of the Bengali students who had gone to England with Di H H Goodeve, to study there, ten years before His four companions were over the age for admission to the examination in 1855 Chuckerbutty had taken the MRCS, and the MB and MD of London in 1848 and 1849, and had served in the Uncovenanted Medical Service from 1850 to 1864

Since 1855, a period of fifty-eight years, 104 officers, with pure Indian names, have gained admission to the IMS by competition, 26 in Bengal, 14 in Madias, 15 in Bombay, and since 1896, 49 in the combined service or general list Besides these 103, some twenty more, whose names are Portuguese or Armenian, have entered the service, and a large number of Eurasians who cannot be identified by their names

Curiously, considering that they are serving in their native country, a large proportion of the

Indian members of the IMS have retried comparatively early, many of them at seventeen and twenty years service Only ten-three in Bengal, five in Madias, and two in Bombay-have put in their full period of thirty years service, and of these ten only one appears to have had the opportunity of promotion in his turn, and to have been definitely passed over for promotion Ten have usen to the rank of Brigade-Surgeon, on its present day equivalent, Lieutenant-Colonel on the selected list, six in Bengal and four in Madias One Bengal Officer obtained the "extra compensation pension" for not being promoted More than half of the whole number have not yet served long enough for any question of promotion to have yet arisen in their cases

Several have held appointments of importance and distinction with credit and success Chuckerbutty became Professor of Materia Medica in the Calcutta Medical College and Second Physician of the Medical College Hospital in 1864, with less than ten years service He held that post for ten years, dying in London, while on furlough, on 29th September 1874 His successor was R C Chandia also a Bengali and a Christian, who retained the appointment for nearly twenty years, till his retirement on 18th October 1891 Lieutenant - Colonel R L Dutt also acted for some time in the same post E P Frenchman was Inspector-General of Prisons in Burma, another Indian member of the IMS held that post in Eastern Bengal and Assam, and now holds it in the New Province of Bihai and Orissa

Lieutenant-Colonel Hormusjee Eduljee Banatvala was boin on 20th October 1859, was educated at the Grant Medical College, Bombay, where he took the L M and S in 1881, and also at "Baits," taking the M R CS, LRCP London, and LSA Medical 1882 He entered the Bombay Service as Surgeon on 1st April 1884, passing third, and a few months later was transferred He became Surgeon-Major on to Bengal 1st April 1896, Lieutenant-Colonel on 1st April 1904, and was placed on the selected list on 1st Up till March 1893 he was January 1910 in military employ, serving in Burma in 1886-89, when he took part in the operation of the first Brigade, and in the pursuit of Hha Oo, and received the medal with two clasps, also in the Lushai Expedition of 1892 For the last twenty years he has been in civil employ in the where he now acts Central Provinces, Inspector-General

### Current Topics

#### ANKYLOSTOME INFECTION

In the report issued by the United States Public Health Service, Vol XXVIII, No 1, 18 a paper by Stiles and Altman, on the proportion of the sexes of Necator americanus passed after thymol, and its relation to the completeness of The investigation is based on the statement made by Lechtenstein in 1885 that male and female ankylostomes are present in 'relatively fairly constant proportion" (by which is evidently meant in practically equal numbers), and that the males are more difficult to expel than the females, from which it follows that by counting the numbers of the 2 sexes expelled, the clinician has a practical clue to the completeness or otherwise of the cure writers give facts which test the correctness of the statements for Necator americanus treated 102 cases with thymol and recovered 13,080 specimens of this worm, of which 46% were males and 53% females. Of these cases 58 were cured, and they had passed 7,960 worms, 45% being males and 54% females Further analysis of these 58 cases shows that in 18 there was an excess of males, in 35 an excess of females, while in 5 the numbers were equal The 44 cases which were not cured passed 5,120 worms, 48% being males and 51% females The writers conclude that, whatever may be the case in A duodenale the method permits of no practical advantage in that of Necator americanus, and they add, "In fact the method is much more tedious, more time-consuming and less reliable than our present method of microscopic examination; and therefore its adoption in our hookworm-eradication campaign is not to be re-commended" It would be interesting to interesting to compare the figures with those of India, but in attempting to do so one is faced at once by difficulty that the question seems to have been approached in the two countries from entirely different points of view In America, as is evident from the huge numbers of worms per case, which is well over 1,000, that those are being treated who are suffering from ill-health as the result of infection, that is to say that, they are real instances of ankylostomiasis. In India, on the contrary, the matter has been chiefly taken up as a routine examination of all prisoners admitted into a pail, and most of such men are healthy In these cases an infection of 100 worms appears to be quite unusual, and quite naturally an infection of a dozen worms will make no apprecirble difference to a man These slight infections are the rule in India, the percentage infected varies in different parts from about 35 to 75 in men of the labouring classes, and the mild infection seems to have no effect on the health of This general mild infection makes any anti-ankalostoma campaign quite hopeless in

this country for many years to comet. Severe cases do, of course occur, but speaking generally we hear little of them. Their relative distributtion in different parts of India is unknown On knowledge of ankylostomes in India 19 quite meagie, in spite (of the amount of work which has been done by IMS officers, and much of the work will have to be done over For example, we now know that there are three human ankylostomes in India, Ankylostoma duodenale, Necator americanus, and Ankylostoma ceylanicum, and that where their relitive numbers have been worked out N americanus comprises about one-third of the total, but whether this is general or not we have no idea, for it is probably true to say that in practically every case where, up to the present time, ankylostomes or their ova bave been found, this has been accepted as evidence of infection with A duodenale, a conclusion which is inconsect Workers on the subject are wanted all over India, and it is impossible to conjecture what the result of their labours will be

#### TROPICAL SKIN DISEASES

In the Proceedings of the Royal Society of Medicine (Vol VI, No 2, December 1912), Di Aldo-Castellani, of Ceylon, has some interesting notes on certain skin diseases of the tropics, a subject which his litherto been somewhat neglected by workers in those regions

He first described a nodular affection of the han of the axilla observed in natives and in Europeans in Ceylon which resembles the l'inchomycosis palmellina of Pick Finither researches had confirmed the conclusions he first made that the yellow variety is due to a "thin bacillarylike" faugus, for which he has proposed the name Nocardia tenuis

The condition must be differentiated from other nodular parasitic conditions of the hair, which are —

Trichosporosis tropica, or Piedra

Unna's trichosporosis (or Piedra nostras)  $^{2}$ 

Behrend's trichosporosis (nodular) Bugel's trichosporosis, or tinea nodosa 4

Du Bois' trichosporosis 5

Lepothiix or Pick's trichomycosis palmellina or trichomycosis nodosa, of temperate zones

The treatment is not difficult, the han should be dabbed two or three times a day with a solution of formalin in spirit (1 di to 6 oz), and applying sulphui ointment (2 to 3 per cent) at night Di Castellani also has a note on copi i itch, a peculiar eruption found in people working Copia is derived from cocoanut The hands, arms, legs, etc., are covered with numerous pruriginous papules or pustules It does not affect the face

The complaint is due to a copia mite or acaruslike parasite described as tyroalyphus longior This mite does not bury itself in the skin, and

it is found in large numbers in copra dust and can be experimentally produced by rubbing copra dust on the skin surface On superficial examination it may be mistaken for scabies, but true buriows are always absent Betanaphthol ointment (5 to 10 per cent) is very useful.

Another note by Dr. Castellan 18 on some dermatomy coses Tinea ciuis (well known as dhobi's itch from a supposed infection conveyed in clothes washed by the dhobi) fungus is called epidermophyton inguinalis and the affection is identical with what Saboniavd in France described as tinea inguinalis

Timea ciuiis may, however, be caused by several species of fungi, viz., E cruris, E perneti, E rubium, and Trichophyton nodoformans

Another affection found by Castellani in Ceylon is called intertrigo sacchoromycetica, a fungus easily cultivated on sugar media and belonging to the genus Monilia. The treatment consists in washing the affected parts with permanganate lotion (1 in 4,000) or 1 in 100 resorsin, followed by bonic powdens, etc

Tinea Flava is very common in Ceylon, and characterised by bright yellow patches on face, neck, chest, abdomen, aims and legs The fungus

15 a malessezia

'Tinea Nigra, described by Sir P Manson in China, is due to a fungus called forma Imbricata It was described in 1872 by Manson, due to a trichophyton-like organism, which Castellani now inclines to call endermophyton, and of which there are two species, E concentricum and E indicum

## THE TUBERCULOSIS SANATORIUM NEAR

This sanatorium was raised as a Memorial to King Edward VIII by the people of the United Provinces and was built at an altitude of 6,000 ft on a site given by the Nawab of Rampui (P. O

Bhowali, Kumaon, U P)

Patients began to arrive on 17th May 1912, and by end of the year 84 patients were admitted and many refused from want of accommodation. It has been designed for 45 Indian and from 3 to The Indian patients 5 European patients. according to the accommodation provided pay from 20 to 40 rupees per month and free quarters, and even free food are provided for 30 other patients The United Provinces Government contribute 12,000 tupees per annum, and the rest of the cost comes out of the Fund Patients came from many parts of the Province

"The percentage of those giving a history of tuber cular lung disease in near relatives was 55 per cent

During the period under report 37 patients left the Sanatorium, leaving 17 patients under treatment on the 1st January 1913 The accompanying statement refers to 36 only of those who left, as one patient was proved to be non tuberculous

55 55 per cent of the 36 patients under report gave a family history of tubercle and the average stated length of illness was 388 days before admission. The average stay of the patients in the Sanatorium was 81 44 days, the maximum being 183 days and the minimum stay 17

Six or 1666 per cent of the patients were in the stage (Turban's classification of the disease) Seven or 1944 per cent 2nd stage (Turban's classification of the disease)

3rd

Twenty three or 6388 per

stage classification of the diaerae )

(Turban's

In following up the result of treatment, 6 patients staying less than one month must be excluded. The result of the remainder is shown in the accompanying table -

Died Not Im Improv Muchim Disease proved ed proved arrested Stages (1) and (ii), 11 cases Stage (m), 19 cases

This gives 63 63 per cent of cases of airested disease in stages (i) and (ii) and 21 05 per cent in stage (iii) These figures, though small, indicate the value of treat ment as early after the outset of the disease as possible

It may be noted here that the term 'Disease arrested' is applied to cases in which all day strenuous exercise on the hill-side fails to cause any absorption of poison from the lung as evidenced in the feeling of general well being and the condition of the temperature and pulse As far as possible these cases of arrested disease will especially be kept in view and a report of their condition made in succeeding years—3 years without relapse are to be considered necessary before the term cure is used

Out of these 11 cases of arrested disease 4 still had tubercle bacilli in the sputum though in much dimin

ished numbers '

"The average length of stay of the discharged (36) patients was 81 44 days, and the length of stay of the arrested cases averaged 112 81 days against an average of, eg, in Turbau's Sanatorium in Davos, Switzerland, of 222 days The necessity for prolonged treatment and for exercising great patience has not yet been grasped by dwellers in India. The cases showing no improvement stayed on an average 54 days

During treatment 125 per cent had blood spitting in smaller or larger amounts as against 41 66 per cent who

came with a history of such

19 44 per cent suffered from a complicating laryngitis, of these 1 died, 2 were not improved and 4 were improved. This result tends to confirm the several opinion of the serious nature of such cases and also perhaps their unsuitability for treatment in high altitudes

tubercle bacilli had been sought for and found in 25 per cent, of the admissions before arrival, whereas 80,55 per cent proved to have the bacilli in the sputum From the reports received from the medical attendants, other than Civil Surgeons, it would appear that this

method of diagnosis is much neglected

Described in a general manner the treatment adopted in the Sanatorium is one of strict attention to hygiene and diet together with the proper regulation of rest and exercise and supplemented in most cases by tuberculin The patients have proved their willingness injections and readiness to submit to the strict regulation of their habits and mode of life which is so essential to then

"The tuberculin injection in the slightly febrile and afebrile cases was followed by apparent marked benefit The belief of the patients in its efficacy is very firm The shortness of the stay of the patients prevented a sufficiently full course of the tuberculin in all but a few of the patients Advice as to the continuing of the injections after leaving has been given, and acted on in most instances, by the patients' own medical attendants and, where necessary, doses of tuberculin have been sent for such patients.

Reverting back to the patients while under treatment, the average increase of weight of all 36 patients was 8 91lbs, and of those staying more than one month 10 23lbs, of the cases with arrested disease, the average increase was 11 09lbs "

Many patients were admitted in an advanced stage of the disease, and it would be better to send only cases where there is a fair chance of amelioration

The ramfall at Bhawali is heavy, about 60 inches in the three rainy months, but it is good to learn that the condition of the patients were not affected thereby

The report is submitted by Major A Cochrane,

FRCS, IMS, and it is very satisfactory

#### LITHOLAPAXY

WE quote the following summary from the American Journal of Surgery as representing American opinion on the operation of Litholapaxy, which after its introduction by the great American Surgeon Bigelow received its greatest development at the hands of Civil Surgeons in India, witness the names of P J Freyer, Keegan, Keith, J A Cunningham, Stevenson, Henry Smith and Davidson, facts which the writer of the following extract is strangely ignorant of

The operation of litholapaxy is advocated by Cabot of Boston, who asks why do surgeons pass by this operation with its mortality of 16 to 6 per cent to resort to suprapubic lithotomy having a mortality from 10 to 20 per cent He believes that litholapaxy is the operation of choice in all uncomplicated cases of stone The claim that suprapubic lithotomy reveals any unsus pecting conditions existing, is answered by him by saying that the cystoscope does this in the present methods before we need to operate at all The litholapaxy outfit, while not very expensive, adds considerable to the surgeon's apparatus, and may seem a serious buiden to a general surgeon who sees few cases of stone, and he, therefore, resorts to lithotomy when such a case occurs in his practice rather than send the patient to another operator. This position is strengthened in his mind by the belief that there is special danger requiring special skill in litholapaxy These imagined difficulties, Cabot says, are greatly exaggerated and not more than in the ordinary cystoscopy, and, according to his observation, there is less danger from litholapacy without experience than from suprapulic lithotomy in experienc-The fear, therefore, of mexperienced surgeons 18 unfounded Formerly, before the modern treatment of prostatic hypertrophy was developed, it was a common thing in his practice to crush stones behind the common thing in his practice to crush stones behind the greatly enlarged prostate. He has notes of 185 cases of formal litholapaxy under general anæsthesia, not including a number of cases where small stones or calcareous gravel were pumped out with or without local anæsthesia. Notwithstanding the unfavourable conditions there were only eight deaths, or 4.32 per cent. Brief notes are given of these cases, showing that even this low percentage could not all be attributed. that even this low percentage could not all be attributed to the operation The modern method of removing prostatic obstruction and making the removal of the stone incidental, has taken most of the difficult cases out of the domain of litholapaxy Since Dr Bigelow's publication there have been few additions to the technic, and Cabot thinks that Dr Chismore's evacuating

lithotrite is the most important innovation, and he uses this only occasionally to bring out some elusive last fragments

#### THE TREATMENT OF BURNS

THE Edinburgh Medical Journal gives a good abstract of a practical paper by Lieber of the practice in Lotherssen's Clinic at Vienna in the treatment of burns which is worth reproducing -

"He favours the view that death after a burn, except in cases dying in a few hours from shock, is due in the The post mortem majority of cases to a toxemia appearances show changes in the kidneys, liver, and heart which are known to be produced by toxamia in other conditions, and the view that a toxin is produced either in the skin of the burned area or in the body or blood as the result of some alteration in metabolism is the only one which satisfactorily explains the conditions found

Of the 188 cases treated, 68 were in men with 4 deaths, 50 in women, with 10 deaths, and 70 in children, with 21 deaths As regards the relative number of deaths in children and adults and their relation to the extent of surface burned, Lieber calls attention to the fact that the child has, relatively to its weight, a large skin surface than the adult, so that while a burn involving about one third of the surface area in an adult is probably fatal, one involving about a ninth of the surface area in a child is likely to have equally serious effects divides the clinical course of burns into 3 periods—that of shock, that of toxemia, and that of secondary infection The great majority of deaths occur within the period of toxemia, ? e, the first six days. Owing to the great variations in the severity of the cases treated in different periods, an accurate comparison of the results attained year by year is not possible, but during the last 2 years of the 10 years investigated, cases have been saved which in former years, under other plans of treatment, would probably have died, and Lieber lays stress on the fact that treatment directed against the toxemia present is likely to be most successful Bearing this in mind, the treatment now carried out in Lotherssen's clinique is as follows -The administration of an anæsthetic or morphia is avoided No formal attempt is made to render the skin aseptic, this being impossible without an anæsthetic and an increase of the shock already present Gentle swabbing with benzine is allowed, followed by the application of a dry, mildly antiseptic dressing in the form of novoiodine powder covered with sterile gauze. Where pain is great anæsthesin powder may be spread first on the surface. This dressing is repeated in two days, if necessary, the old dressing being removed in a bath. Before the dressing is applied blisters are snipped at the base and chaired pieces of skin are cut off. The general treatment consists in the free use of cardiac stimulants and, most sists in the free use of cardiac stimulants and, most important of all, the frequent administration of physiological salt solution subcutaneously, as much as 7 pints being given to an adult in 24 hours. The saline is said to counteract shock and to promote the elimination of toxic material by the kidneys. Most dressings, greasy dressings, and sedatives are carefully avoided as tending to aggravate local infection and depress the patient's resistance Since the line of treatment indicated has been followed, the general results are said to have been much improved"

### THE CARRIER QUESTION

A very useful and practical article on the carrier question appeared in The Public Health Journal of Toronto (Vol III, No 12, December 1912), written by Dr. H W Hill, Director of the Institute of Health at London, Ontario

We will quote some of these remarks as they clear up in a marked way various confusions of ideas on the subject

He classifies carriers into three types—

- (1) The External carrier, i e, he who has germs on his hands, han, clothes, etc., he had had recent association with an infected person, such as physicians, nurses, visitors to the sick, etc. Soap and water can usually ind these carriers of the infection.
  - (2) The Incubate carrier(3) The Decubate carrier
- "The internal carrier, the living incubator, he in whom the germs have established a definite habitat and bleeding ground, is, man for man, many times more dangerous, first, because the germs he carries are so abundant, second, because they are moist, warm, growing, third, because the germs may remain with him for days, weeks, months, years and sometimes forever, fourth, because he cannot be rid of them by any ready means. The further fact that the well internal carrier usually can be, from history of recent association with infected persons, etc., is itself a valuable, practical distinction. The well internal carrier is at times of great, even crucial importance, and if we class, as we should all infected persons, well or ill, as carriers, the internal carrier problem is coincident with the main problem of infection. Three classes of such internal carriers may be recognized, and I have ventured to

In the natural history of infectious diseases

All infectious diseases present seven more or less well defined stages, infection, incubation, onset, fastigium, convalescence, decubation, and defection In the incubation period the patient to be is well, although the germs are present in the body busy establishing themselves. In the period following recovery, the ex-patient is well, although the germs are often still present in the body, busy disappearing. This I call decubation. Every complete case of an ideal infectious disease presents, constructively, at least, three periods during which the patient is infected. In the first period incubation), and in the last period (decubation), he is well, in the middle, including onset, fastigium and convalescence, he is ill

suggest names for them, correlating with certain stages

The decubation period or period of gradual disappearance of the germs, balances the incubation period of period of gradual development of the germs. The defection or final disappearance of them from the body balances the infection of first appearance of them in the body. Of the three periods the incubation period is without lesions of any kind, the decubation period is without active lesions (although it presents sometimes aftermath lesions, such as pitting, scaling, paralysis, etc.), but the interval between presents actual lesions of function or structure, due to the activities of the germ in the body at the time. This is the lesional period. Infected persons in the incubation period I call incubates, infected persons in the decubation period, decubates, infected persons in the lesional period, lesionates. The significance of these distinctions from the epidemiological standpoint is as follows.

Incubates, ie, infected persons who have not been ill as a result of the infection, may be first divided into those who go on to recognizable lesional development and those who do not Thus the incubation period may be normal, ie, end by the development of lesions, may be aborted by the early disappearance of the germs, or may be indefinitely prolonged, without lesions developing at all The famous Typhoid Mary, who yielded, week after week for at least two years of observation, discharges swaiming with typhoid bacilli was a notable example of a prolonged incubate carrier. She had been infected, the germs had established them

selves developed, and continued to grow in her, but she never had any recognized lesions"

## "THE PLANTAIN, A FRUIT IN A STERILE PACKAGE"

THE use of the plantam as a fresh fruit is well known in India, and the banana as it is there called is becoming more and more a regular fruit in the European markets Like all other fruits it is best when just ripe In its green state it consists largely of starch and water, and the change of the process of ripening chiefly consists of a conversion of the starch into soluble carbohydrates, sucrose, invert sugar and dextrins) The edible portion of each fruit is packed away in a fairly resistant covering or 'peel,' which, according to Di E M Bailey (a chemist quoted by the Journal of the American Medical Association), gives a very efficient protection to the inner contents and the inner pulp of a sound banana is The peel is singularity practically sterile resistant to invasion by bacteria We quote from above article as follows -

"Even when finits were subjected to the exceptionally severe test of being immersed in fluids containing cultures of known organisms there was no evidence of a penetration into the interior. The probability of infection through the peel is therefore very slight, though, of course, germs deposited on the peel might be transferred to the consumers fingers and thence to the mouth. It is not unlikely that the few organisms commonly found along the inner coatreach in through the circulation of the plant juices while the fruit is still on the tree. Apparently natural decay begins only after the banana has reached a stage of related enzymatic inactivity, and the biochemical changes incident to ripening are complete. Until then the normal fruit tissue seems to exert a deterrent action toward any infecting organisms.

Obviously injury to the protective coat destroys the perfection of the defence against microbial invasion, and it is at the site of abiasions on the surface of the peel that the objectionable decay usually staits. It is important to appreciate this interesting example of a food delivered by Nature in practically sterile packages with the ready possibility of being distributed in this form by man, provided that the exigencies of the case are duly appreciated alike by dealers and purchasers Nature's wholesome service should not be undone by

careless methods of marketing such foods"

#### FIELD MEDICAL TRAINING FOR I M S OFFICERS

The following order has been recently published, which will be of interest to many I M S officers on furlough (Army Dept., Govt of India, No 2909-1 D M S, dated Simla, 1st March 1913)

"I am directed to say that, with the approval of the Most Hon'ble the Secretary of State for India, the Government of India sanction a limited number of officers of the Indian Medical Service—not exceeding four in a year—being attached, while on leave in the United Kingdom to the Staff for periods of one month each, for the purpose of undergoing a course of training in medical work in the field and medical organisation generally

2 The officers selected, who should preferably be of field rank, will receive during the period of training the Indian pay of their rank and the staff pay of their permanent appointments in heu of furlough pay, and also travelling expenses for journeys between their place

of residence and place of training They will not, however, be granted any extension of leave for the purpose They will be required to join for duty a week before the commencement of the medical training or manœuvies which usually takes place from June to September

3 In order to enable timely arrangements to be made, I am to request that you will submit to the Government of India, as early in the year as possible the names of officers selected to undergo this course

4 The extra expenditure involved is estimated at

Rs 2,012 per annum.

WE direct the attention of our readers to an advertisement in another column of Pendyffrin Hall in North Wales This private sanatorium is in charge of Di G Magill Dobson, late of the LAMC, and Di. C F. Fearnside, Lt-Colonel, IMS, who served for 25 years in Madias in

various forms of civil employ

Pendyffin Hall is close to Conway and Penmenmawi in North Wales It has been in existence since 1913, and contains quarters for The principles upon which this sanatorium is iun aie the accepted ones of puie air, good food carefully regulated, exercise and rest, and the bright and sunny site of this sanatoriun is admirably adapted for such a purpose We commend this place to the notice of our readers who may be on the look out for a private sanatorium for one of their patients

As is usual the record of the medical and suigical work done by the Dis Neve and their colleagues in the Kashmii Mission Hospital is a good one We quote the following Suigical Notes from the Annual Report of this hospital.

"A glance through the operation lists shows at once some of the most common diseases in Kashmir and those which are fortunately amenable to surgical treatment

There were for instance 532 cases of entropion and trichiasis the commonest cause of blindness, with the exception of small-pox

More than 500 tumours were removed. Of these 92 were the peculiar type of cancer due to the use of the

kangri oi portable file basket

For eye diseases alone 1,170 operations were performed These included 136 for cataract, 122 of which restored sight to those previously quite blind. The standard of success is somewhat lowered by the great prevalence of chronic ophthalmia This often necessitates prolonged preliminary treatment. In nearly all cases the bacteriological condition of the conjunctival sac is investigated before operation

For bone and joint disease 530 operations were re-med There were only fourteen major amputations Owing to the strong feeling in Kashmii against amputation, we are obliged to push conservative surgery to its ntmost limits and many lives are lost which might have been sived by the timely removal of a diseased member

Of the surgical deaths in hospital the great majority were due to the patients not being brought to us until they were already almost 'in extremis' from debility, sepsis of profound general toxemia. For instance, the following cases requiring urgent operation came too late and with their systems so loaded with toxins that surgery failed to give relief—three cases of intestinal characters. obstruction, two of lacerated wound of abdomen with prolapse of bowel, two of septic intra-cranial abscess due to ear disease, two of gangrene of the leg, two septic confinement cases, two cases of severe injury to head and abdomen, one strangulated herma, one 'dog bite'

with tetanus and one peritonitis from perforating gastrıc ulcer.

In spite of this the total mortality on the 5,000 opera-

tions major and minor was only about } per cent

The steady increase of tuberculosis is becoming a very serious factor. At present Kashmir is terribly backward in sanitary matters. The State authorities incul a very grave responsibility in connection with their maction in the presence of the frightful navages of this rapidly increasing disease. There is not even a system of registration of births and deaths yet in Kashmu <sup>1</sup>

The Leprosy problem has been satisfactorily dealt the And the tuberculosis question ought to receive

immediate attention"

Some time ago there was a tendency to hide under the name neuritis, the undoubted, if slight prevalence of a disease among British troops in India which was either beri-beri of the kindred deficiency disease epidemic dropsy glad to see that this mystery making has been dropped and Col F Smith and Capt A E F. Hastings, R.AMC, have reported on cases in ('alcutta and at Lebong in the years 1909-1912 (Journal R A M C., February, p 202), unfortunately no attempt is made in the article to elucidate the cause of the disease, it is only intended to place its existence on record The polished-rice theory can scarcely be applicable to these cases in British soldiers and over indulgence in alcohol can also be excluded

It is to be hoped that when cares occur they will be thoroughly investigated

### Reviews.

The Diseases of Children.—Edited by Dr. M PFAUNDLER, and Dr A Schlossnann Translated by Henry L K Shaw, MD, and Linnacous Philadelphia and London J B La Fetra, n d Lippincott Co Vol. V, 1912 Pp 348 trated. Price, 21s net

THIS is the concluding volume of a series of five on diseases of children and presents a survey of those conditions in children needing surgical and orthopædic interference

The authors in their preface state that it is intended as a guide for the general practitioner

ın surgıcal cases ın children

The subject-matter has been divided into six sections and arranged as far as possible in

etrological groups

We are glad that the authors, on the threshhold of then book, insist on the fact that by deferring operations serious injustices are frequently done to children The "Laissez Aller" policy, embodied in the assertion that "the child will grow out of it," is deplorable

Section I on Congenital Affections takes up

129 pages of the book

The various articles in this section are prefaced by an account of the normal development

In writing this section the author has not taken into consideration the limited time the practitioner has for reading. The pathological descriptions are extremely difficult to understand, the description of the pathology of harelip is poor and all through lucidity is conspicuous by its absence. We do not forget that embryology does not tend to lucidity, still we have read articles more easily and quickly understood than this

There are a few errors to be found in this section, for instance, on page 18 "cerebral meninges" are written when "spinal meninges" are meant, on page 24 the word "clefts" is used in place of the word "arches" For example, we read—"somewhat higher up two other clefts, the upper maxillary processes grow towards the forehead," etc. A process can hardly be a cleft

As to the pathology of hare-lip, surely both Kolliker and Albrecht are right. We have always understood that in simple hare-lip the cleft runs between intermaxillary bone and maxillary process (Kolliker) whereas in complete or alveolar hare-lip, in addition to the fissure between the intermaxillary bone and maxillary process, there is a fissure between the internal and external intermaxillary bones (Albrecht).

We note that in the Giatz clinic hare-lip operations are carried out without any anæs-

thesia whatever.

The articles on the malformation of the umbilicus and deformities of the iectum aie good, as is also that on congenital dislocation of the hip But the description of the bloodless operation of Lorenz might have been more In severe cases we have found that it is necessary to break the adductor muscles by kneading and that the flexor muscles are best stretched by over extension of the joint, the knee being fully flexed, and that the extensors of the hip and hamstrings are similarly stretched by overflexing the hip with the knee The padded wedge should be placed extended obliquely beneath the trochanter and the thigh levered over it. Great care should be taken that the wedge does not slip below the trochanter

Boric powder should be freely applied during the operation. The plaster is best applied over a pair of knitted drawers. Fig. 48 d & e show the plaster extending below the knee in a flexed condition. We hold this to be wrong as during the after-treatment the hamstrings have a tendency to contract which can only be pre-

vented by extending the knee

On the whole, we cannot recommend the perusal of section I by the general practitioner

Section II which consists of 60 pages and treats of disturbances in post-feetal development is decidedly better. The article on scoliosis is good and the drawings excellent

We are in entire accord with the author when he states, re infants starting to walk, "to force children to walk, either with the aid of a nurse or go-carts, or walking apparatus is absolutely objectionable"

Section III treats of surgical infections. This, although dismissed in 90 pages, forms useful reading

With regard to the treatment of tuberculous infections, especially of joints, conservatism is the key-note throughout

Section IV complising some 32 pages treats of injuries

Mention is made of bionchoscopy and oesophagoscopy which in adults certainly have revolutionised the surgery of those parts

Surgeons in India will hardly agree with the author's dictum that litholapaxy cannot be used in children!

Nairowness of the urethia is no reason, as the urethia of a boy of four will admit a No 7 litho trite. The article on the treatment of fractures assisted, as it is, by many excellent plates is flist class and should prove of use to all who read it

In Section V surgical measures in diseases of nervous origin are discussed. Forster's operation is mentioned, but the reason why Forster enunciated the principle to divide two, but never more than two consecutive roots might have been amplified.

A Clinical Manual of the Malformations and Congenital Diseases of the Foetus—By Prof. Dr. R BIRNBAUN Translated and annotated by G Blacker, MD, BS, FRCP, FRCS University College, London Illustrated Messis I & A. Churchill, London, 1912 Price 15/.

On receipt of this volume we looked forward with pleasure to its perusal and we can honestly say that our highest expectations were more It is a standard work and will than fulfilled rank in the first flight as a beautifully illustrated and exhaustive work on the subject with which The publishers have surpassed themit deals selves, and those who know books will understand what that means when applied to the above for Dr Blacker has given the Englishspeaking community a volume which reflects the greatest credit not only on his industry and zeal, but also on his scholarly attainments So far as we know there is no book in English that covers the same ground and for that reason alone its translation and publication are justi-In addition to the original matter in the German edition, Dr Blacker has contributed a considerable number of notes, partly explanatory and partly extending the information, which are not only useful but assist in explaining the close relationship that exists between the facts of normal embryology and the mode of development of many of the malformations and monsters described

The work deals with the causation and classification of malformations arrest of development of the whole embryonic rudiment malformations due to defective closure of the spinal

canal defects in the skull-cap hydrocephalus malformations and congenital diseases of the face and neck, thorax, bronch, lungs, and heart including those of diaphragm herniæ and defects in the organs of digestion, liver, spleen, and pancieas malformations of the kidneys, suprarenals, bladder, urethra and genital organs, malformations of the skeleton, fætal gigantism congenital dropsy Double monsters, monsters without a heart, the legal rights of monsters

There are eight full-page illustrations and fifty-eight illustrations in the text, the whole beautifully executed. We cannot speak too highly of the volume which is certain to rank as a classical work on the subject. One most valuable point with regard to Professor Birnbaun's treatise may be referred to, he takes the important question of treatment into consideration and discusses his subject to a great extent from the clinical aspect.

An Historical Outline of Ambulance, from the Earliest Times—By C H Miles, LR.CP Messrs John Wright & Sons, Ld, Bristol

This short account of ambulance work from the earliest times is well worth perusal. We have read its pages with great interest, and those who had leanings towards the ancient classics will be delighted with the references to the authors of their younger days. Ambulance work in recent years has made great progress, not the least important part of which has been played by the association in connection with the order of St John of Jerusalem.

Insomnia its Causes and Treatment—By Sir James Sawyer, MD, r.R.CP 2nd Edition, Revised Messrs Cornish Bios, Birmingham, 1912

It is eight years since the first edition of this important work was published and the accumulation of much additional material, new facts and new methods of treatment have rendered it necessary thoroughly to revise the volume The subject-matter consists of the first three chapters of the author's "Contributions to Practical Medicine" as they stand in the 5th Edition, 1912, of that book, and are offered now in monograph form for the convenience of the profession The first chapter treats of causes of insomnia a large number of different causes being discussed Chapter II is devoted to the treatment of insomnia Many most valuable suggestions of a practical nature will be found in this chapter and the practising physician will read its pages with interest and no little profit The final chapter gives a practical summary of the whole subject, and is taken from the author's article in "An Index of treatment by various Writers" Edited by Dr Hutchison and Mi Stansfield Collier can heartily recommend this small volume to the profession in India as outside its merits as a guide to a knowledge and the treatment of incomnia, it is written in a charming manner

and with a wealth of imagery that stamps the author as a Master of English

A Surgical Treatment of Locomotor Ataxia.

—By L. N Denslow, M.D., Fellow, New York
Academy of Medicine, Pages 118. Price 3s
6d net Baillière, Tindall and Cox, 8, Henrietta
Street, Covent Garden, London.

This book contains the author's results in the treatment of locomotor ataxia by correction of any abnormality in the urethia, according to his experience in this disease the urethia is never normal. He has, moreover, no doubt that all cases of tabes are ultimately due to syphilis, but other factors are needed to call it forth and in the male urethial mintation is the most important one.

The lesions found in the methra are either erosions, granulations or stricture and with these is often associated a hypersensitiveness of the canal. The treatment directed to these conditions must be mild otherwise symptoms may be aggravated. Erosions are best treated with mild solutions of argol or copper plus the passage of a sound to the limit of the penile methra, strictures are incised and gradually dilated.

Briefly the author's theory is that "tabes is due to peripheral irritation, which, by continuous impulses going on for many years, culminates in exhaustion of the posterior roots and gives use to tabetic lesions, aided by the syphilitic virus"

This theory is fully elaborated and supported by histories of cases treated in various countries

The results obtained are most encouraging and the treatment is certainly well worth trying. The book is clearly written and will repay perusal

## The Bacterial Diseases of Respiration, and Vaccines in their Treatment $-R \ W \ Allen$

THE matter contained in this book has already appeared as a series of articles in the numbers of the Journal of Vaccine Therapy from February, 1912 to January, 1913 inclusive. For the present work these articles have been revised and fresh material added, Chapter XI being entirely new

After an introductory chapter in which a scheme of work is given, the bacteriology of the respiratory tract in health is considered. Then follow three chapters on the respiratory tract in disease which deal, in the first place, with methods of investigation, such as the technique of various staining methods, cultural methods for investigating the bacteriology of the respiratory tract with a description of the various pathogenic bacteria which may be present, and in the next place with the results of the observations into the bacteriology of the various diseased conditions of the respiratory tract, including Nasal and Post-Nasal Catarrh, Diseases of the Accessory Sinuses, Eustachian Catarrh, Tracheitis, Pulmonary Catarrh,

Whooping Cough and Pulmonary Phthisis The next four chapters are devoted to vaccine therapy of respiratory disease, commencing with certain general and special considerations In chapter VI is given an account of vaccines the treatment of Nasal and Post-Nasal Catamb, Tracheitis and Laryngitis Infections of the Accessory Sinuses, the next chapter deals with the vaccine therapy of Bronchitis and Asthma, in the next, the vaccine therapy of Pneumonia is very fully gone into, then follows a chapter on vaccines in Whooping Cough, Diphthena, Pyonhoa Alveolans Hay fever, Ozena, Rhinoscleroma Chapter X is taken up with a consideration of the mixed infections in Pulmonary Tuberculosis and vaccines in their treatment, and the last chapter is devoted to a consideration of infectious by the tubercle bacillus and the use of specific products in their treatment. The book is illustrated by a number of photographs and microphotographs

The recent researches of Hort on vaccines and fever may, if confirmed, lead to very considerable modification of our present conception of vaccine therapy, eg, it has been generally accepted that as regards fever the pyrogen of infective disease is a derivative of dead bacterial protoplasm in solution. Hort shows that the evidence on which this view was based can no longer be relied upon. Whether this also applies to the antigen is a problem for further research. It will thus be seen that it is desirable to re-examine the whole scheme of vaccine therapy in the light of his investigations.

In regard to the action of tuberculin in pulmonary tuberculosis Dr Rigg, late of the staff of the Brompton Hospital, carried out at the instigation of Di Batty Shaw a series of carefully controlled observations on the therapeutic use of new tuberculin in the treatment of pulmonary tuberculosis He concludes that the administration of new tuberculin by one of the more approved methods is not followed by greater improvement in the physical signs, not by greater increase of weight, not by more greatly increased capacity for physical work, nor by a greater improvement in the general condition, as compared with the ordinary results of hospital methods. The author of this book, on the other hand, states that "the greater the experience of any specialist in tuberculin treatment itself, the stronger as a rule is their advocacy"

The book is a record of painstaking and laborious work

A Practical Guide to the Newer Remedies —
By J M FORTESCUE BRICKDALE, MA, MD (Oxon),
Lecturer on Pharmacology in the University
of Oxford, Bristol John Wright & Sons, Ld
London Simpkin, Maishall, Hamilton, Kent &
Co, Ld Pp 273 Price, 5s net

In this book will be found a short account of the properties and dosage of the principal new drugs, the composition of which is published, and

whose pharmacology has been more or less Then relative and collecaccurately ascertained tive value is indicated by reference to clinical experience, laboratory experiment, and a study of the literature The information given is made of practical value by furnishing a short account of the dusige, appearance, and solubility of each Drugs derived from animal extracts compound have been excluded, and an account of the sera and vaccines has been omitted There are seven chapters dealing amongst other drugs with Thiosinnamine—Glycerophosphates—() a c o dylates, newer preparations of Bismuth, with drugs acting on the intestines, on the circulation, with Hypnotics—Anæsthetics—Antipyretics and a final chapter on certain specific remedies The book is clearly written, the matter is practical, and it cannot fail to be of use to the practitioner, by enabling him to judge the true value of the drugs put on the market by rival manufacturing We recommend its perusal to all practitioners anxious to keep abreast with the times

New and Non-Official Remedies, 1911 — Containing Descriptions of the Articles which have been accepted by the Council on Phaimacy and Chemistry of the American Medical Association, prior to Jan 1, 1911 Pp 282 Chicago Press of the American Medical Association

This is a new departure The book contains the medical substances which have been examined by the Council on Pharmacy and Chemistry of the American Medical Association, which appeared to comply with the rules of the Council, and which therefore were accepted for inclusion in the annual "New and Non-Official Remedies" The work opens with the official rules, compliance with which is necessary before any drug or article will be included in the "N N R" The object of the Council on Pharmacy is primarily to gather and disseminate such information, as will protect the medical profession in the prescribing of proprietary medicinal articles Considering the ever increasing stream of new drugs, chiefly the products of synthetic chemistry, and the rare intervals at which new editions of a National Phaimacopona can be issued, there is ample scope for the present work The remedies are arranged in alphabetical order The information given includes a bijef description of each diug, its source, formula, solubility, action, uses, dosage and the name of the firm who manufacture it The book rarely speaks with the voice of authority when noting the therapeutic use of the remedies, but simply states what has been alleged, or claimed about the value of the various preparation It is a useful publication which we have perused with profit, and which will become more valuable with each annual edition.

Jellett's Midwifery —By H JELLETT, MD (Dub), Master, Rotunda Hospital, Dublin. Sixth Edition, Revised London J & A Churchill Price, 10s 6d

DR JELLETT'S Rotunda Midwifery is so well known, and twenty thousand copies of it having

been sold, it needs but a short notice to recommend this book to our readers. Giving as it does a succinct account of the methods adopted in the management of parturent women, it appeals to all who know the high repute of that great Maternity Hospital The new edition has been completely revised and has a larger page exceedingly well printed and got up The statisties of over 32,000 midwifery cases at the Rotunda are also analysed

The methods are by no means always those advocated in other text-books, but being based on an enormous experience they must command

attention

We can thoroughly recommend this new edition

Modern Wound Treatment and The Conduct of an Operation—By Sn George T BEATSON, KCB, MD Edinburgh E & S Livingstone, 1913 Pp 103 Price, 2/- net

In this small brochure, written by one who served as a dresser under Lord Lister during the period when that benefactor of the human race was originating and developing his antiseptic treatment of wounds, a treatment which has revolutionised surgery in the abolition of asepsis, the first chapter is rightly devoted to a brief consideration of Lister's Life and Work

The second chapter dealing with "The Principles of Wound Treatment" is somewhat elementary, and in our opinion written in the style of a popular lecture intended to give the

lay-public an insight into bacteriology

In the third chapter headed "Asepsis and Antisepsis in Surgery," we find methods of sterrlisation of dressings, sponges, ligatures, instruments, etc., described It might be mentioned that the author does not appear to be a champion of the necessity of wearing gloves and masks

The fourth and last chapter shows how wounds should be treated and operations conducted the treatment of accidental wounds seen soon after their infliction surely the author would have been better advised had he insisted on the disinfection of the adjacent skin and shown how that should be done than to make mention of the disinfection of the skin as an afterthought after advising the thorough opening up of the

Minor Maladies and their Treatment -By L Williams, M D London Bail'ièie, Tindall & Cox Thud Edition Clown 8vo

WE expressed a very favourable opinion on the first appearance of this little book, and the issue of a third edition shows that our good opinion

was shried by many others

The new edition contains many alterations, but remains about the same size, and we think it will undoubtedly prove to be most useful to the young practitioner, as the subjects dealt with are just those too cursorily dealt with in text-books, eg the chapters on colds and sorethroat on

indigestion, on change of air, on theumatism A most practical chapter is on and headache some drugs and then uses, eg, rodide of potash, digitalis, calomel, "hydrarg. c ciet," aisenic, bismuth, formalin, thyroid extract, etc

We can thoroughly recommend this eminently

practical and useful book.

Vicious Circles in Disease -By J B HURRY, M D Second Enlarged Edition J & A Churchill Price, 7s 6d

WE expressed a very favourable opinion of this book (I M G, May 1911, p. 186), on its first appearance a short time ago. Since then The book six new chapters have been added consists of  $\bar{1}8$  chapters,  $e\,g$ , Uncles associated with the Nervous system, the Digestive system, the Cardiovascular system, etc Such vicious circles are widespread in their distribution and play a great rôle in pathology and we agree with the author when he says that the subject has hitherto received but little attention, yet a "great part of the Ars medendi consists of breaking the cucle"

We can certainly recommend this thoughtful book to our readers. It is decidedly interesting and full of useful suggestions The book has been most elegantly got up by the publishers, beautifully printed and well bound. It is a

pleasure to dip into such a book

## Medical Society.

#### DENGUE OR SEVEN-DAYS FEVER. DISCUSSION AT THE ASIATIC

THE following belated account of the discussion at the Asiatic Society of Bengal on Di Hossack's paper on Dengue (I M G., 1913, Feb., p. 49) is herewith published -

Col Nott, IMS, said that his four years clinical experience at Howiah had put it beyond all doubt that he had to deal with a seasonal endemic fever, non-malarial, occurring mainly in Europeans, who had newly arrived in the country, mill assistants and the like The season was about from May or June to September disease was of a dengue-like type and varied slightly in its manifestation from year to year, but it was noticed that in any particular outbreak there was a tendency for the leading symptom or symptoms to be constant Thus, in one particular series of cases, the dominant symptom, was intense pain behind the eyes This year the first cases, which definitely conformed to the textbook type of dengue, appeared amongst the staff of the B I S N Co who were all connected with the docks at Kidderpore Of the cases he had seen in the last four years not more than one in four conformed to Rogers' type of 7-day fever He concluded that the seasonal fever he had observed and Rogers' 7-day fever, were one and the

same thing, namely, dengue He inised some points of difficulty in regard to Phlebotomus as a carrier was of opinion that such points were better dealt with by laboratory workers

At the adjourned discussion Col Nott added that since he first spoke he had had the opportunity of perusing a monograph on Pappataci of Phlebotomus fever in Heizegovina He considered it inseparable from dengue of 7-day fever

Captain Burgess dealt briefly with an outbreak of dengue in the staff and entourage of His Ex-

cellency the Governor

Col Smith, RAMC, confirmed all that Col Nott had said as to the existence of a seasonal endemic non-malarial fever The records of the gainson shew that for many years a non-malarial fever has regularly begun to manifest itself about Apul or May, and that on the average about 250 cases developed in the next three months was a dengue-like fever but varied much in duration, including, 1 day, 3 days, 5 days, and 7 days types, but whether the fever lasted 1 day or 8 days he was convinced that it was one and the Contrasted charts were exhibited, including one of his own attack which was ushered in by a sudden pain and stiffness in the ankle as if he had strained it The records of Col McCulloch and others of his predecessors shewed, that the disease this year was the same as that of the year before and that again was the same as that of preceding years The only difference is that this is the first year the disease has been officially returned as dengue As regards the identity of the disease with sandfly fever, the fact that the 40th Pathans who came from a sandfly country were severely attacked, while the Carnatics, whom one would not expect to be immune, escaped almost altogether was rather suggestive At the adjourned meeting Col Smith added the following remarks on blood counts and blood examinations. A rather unique series of blood examinations had been carried out no less than 461 and in none of those diagnosed as dengue had a correction to be made owing to the finding of malarial parasites In over 100 of the cases a full blood count had been carried out that there was a marked leucopenia in 90 per cent

Major Rait, IMS, remarked that as against the leucopenia described by Col Smith he had an impression that slight leucocytosis was not uncommon, and that Edmonston Charles had described small bioplastic bodies as abounding in the serum of dengue patients (blood platelets found in many acute fevers, Ed?) He had been unable to satisfy himself as to any to genuine difference between 7-day fever and dengue There were at least no clinical differences. The two diseases were at least twins and the only differentiation was that one was Charles' dengue

and the other was Rogers' fever

Major McCay, 1 M 8, said he would only speak of his personal experience which was practically identical with that of Major Megaw. He had attacks of diminishing severity two years in succes-

sion of a non-malarial fever which was diagnosed by Col Bomford as probably dengue. This was ten years ago. His opinion was that dengue and 7-day fever were one and the same disease.

Dr Elmes said he had been in medical charge of the epidemics on the 'Lady Frasei" and the diedgei and could confirm Di Hossack's description. The fever was of short duration, rash was present in only a few of the cases and the pain were not a very prominent feature. Looking at the epidemic from a larger point of view the most interesting thing about was a gradual change in characters. Rash in the early cases was infrequent and little marked. Later it got more common and better marked, and in the last stages of the epidemic it was frequently the leading symptom and the very first to appear. He had seen cases where a very clearly defined rubeoloid rash preceded the fever

Dr H N Ghose referred to one case of ædema and one case with cerebral symptoms. He was of opinion that 7-day fever wis differentiated from dengue by the comparative absence of the red diffuse rash of dengue and the fact that the

pains are less severe.

Dr Chatterjee said —As he has not seen a case of 7-day fever he is not positive regarding the question of identity or not of the two diseases, 7-day fever and dengue, if he is to judge from clinical symptoms But from general epidemiological point of view, he can say that the two He is in touch with the diseases are different medical profession of Calcutta for the last twelve years, and he is likely to be cognisant of any new The medical Calcutta disease occurring in professions of Calcutta are too wide-awake nowa-days not to detect any new type of disease occurring in Calcutta. As for example, an epidemic of continued fever followed by coma and death occurred among the 'Marwaris' about three years ago The medical practitioners thought it new disease, but examination malignant tertian malaria parasite with which 'Marwails' got infected at a pienic held near Dum Dum. So it is not likely dengue has been occurring in Calcutta in a sporadic form without attracting the notice of the practitioners, for the symptoms are quite characteristic. In fact this epidemic which is in question was first noticed by several Indian practitioners So that the idea of dengue simultaneously occurring in spotadic forms in Calcutta cannot be If so, then the appearance of the maintained present epidemic of dengue cannot be identical with 7-day fever For it has been proved to be occurring amongst the Europeans coming to Calcutta for the first time If it be so, why did it not spread to the Indian population from the The real explanation is that 7-day fever is entirely a different disease from dengue The present epidemic has presed away

Major L Rogers said —"I regret I was absent from Calcutta at the time Dr Hossack's paper was read, but I understand that Dr. Hossack had

given a summary of the literature from his own point of view, and that the majority of the speakers on that occasion, as well as during this evening's debate, have agreed with Dr Hossack in having been unable to differentiate between the cases of the recent epidemic dengue and those of the spotadic annually occurring 7-day fever, as first described by me We thus find that the general opinion has completely veered round during the short time that has elapsed since the last debate on the subject on Major Megaw's paper in this 100m, when he found no supporters for his theory, a striking illustration of the great difficulty in forming reliable conclusions on purely clinical data without any pathological basis Still more remarkable is the fact, that at a debate only a few months ago at the Calcutta Medical Club, the Indian medical men were absolutely unanimous in arriving at precisely the opposite conclusion, namely, that the epidemic dengue in the north of the town was absolutely distinct from 7-day fever, and that too after listening to a paper based on a minute analysis of the carefully recorded symptoms in a large number of epidemic dengue cases, such as unfortunately our debate has been absolutely lacking in, only vague opinions and isolated points being relied on by those speakers who I have had the opportunity of listening, while I found little more in the paper and notes of the first evening's debate which Di Hossack has kindly allowed me to peruse

It is, therefore, clear that the question must be looked at from a wider epidemiological point of view, and I think we shall then see good reason for doubting the identity of the two diseases, and also find an explanation of the great divergence of opinion between the speakers in this debate and those of the Calcutta Medical Club the most important fact which was brought out at the last mentioned discussion was that Indians living permanently in Calcutta are practically, if not entirely, immune to 7-day fever, yet were only almost universally attacked by the recent epidemic dengue, quite as much, if not more so, than Europeans, among whom sporadic 7-day fever is so exceedingly common is in accordance with my long experience of fevers at the Medical College Hospital, where 7-day fever is very rarely seen among Indians, while the few cases I have seen among them were in persons not permanently resident in Calcutta, but usually recent arrivals from distant Thus, if Major Megaw's theory is correct, we have the amizing fact that Indians of Calcutta are immune to sporadic dengue (7-day fever), yet extremely susceptible and almost universally attacked by epidemic dengue! Two Indian medical men, however, who suffered from epidemic dengue in 1872 escaped during the recent outbreak so apparently epidemic dengue itself does afford lasting protection

Once more, I showed in my account of 7-day fever that in three-fourths of the cases coming

under observation early in the disease the temper ature shows the typical saddle-back or continued type of fever, without touching normal during the partial remission, while in no case was the fever of less than four days' duration As I have notes and charts of every fever case in the European hospital for two years, there can be no possibility of doubt as to the accuracy of these statements, while they were fully confirmed by Major J G Murray, IMS, in subsequent years Moreover, only 3 per cent were less than five days and only 8 per cent less than six days' duration On the other hand in dengue, according to all the classical descriptions, the primary fever of about three days' duration is succeeded by a complete remission, which may or may not be followed by a very short terminal rise about the seventh day Thus on Megaw's theory we have the remarkable phenomenon that sporadic dengue (7-day fever) presents, as a rule, longer and more continued fever than epidemic dengue, or in other words, the sporadic form of the disease is much more severe than the epidemic one We thus find that on this theory two of the most universal laws of epidemiology are completely reversed, which to my mind affords an insuperable argument against 7-day fever being merely sporadic dengue

It remains to explain how the present great

differences of opinion can be reconciled confusion is due to the fact that mild, and especially second attacks of 7-day fever show more marked and complete remission of the fever, and thus come to similate the typical dengue cuive Moreover, it so happend that the 1912 epidemic of dengue coincided with the regular season of the 7-day fever in Calcutta, so it is not surprising that the two diseases should have been confused, especially by such an observer as Di Hossack who has not had the opportunity of closely watching fever cases in a hospital for many years past We have only to assume for a moment the possibility of the two diseases being distinct to understand any recent change of view of the members of this society, for it follows that if they are distinct those of our members who have admitted their inability to distinguish between them, have formed then clinical ideas from a study of cases of both diseases together, and hence their opinions are of little or no value other hand, the members of the Calcutta Medical Club had the great advantage of studying the recent epidemic of dengue among a population practically immune to 7-day fever, so that then unanimous opinion, supported by that of Lt-Colonel Brown, IMS (Retd) (who has such a large experience among both the European and Indian communities) that the recent outbreak was quite distinct from the yearly prevalent

It only remains to add a few words on 3 day fever of the Punjab, or sandfly fever, which Di Hossack would also mix up with 7-day

greatest

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fevei,

fever and dengue, quite ignoring the fact that McCarrison, who first described it in Chitral, definitely stated that he had never seen a case at all resembling 7-day fever among over 700 had carefully studied, although fever also occurs in the Punjab and the two have been confused by some writers Robinson and Blackham, however, have recently described the differences between 3-day and 7-day fever in the Punjab, and pointed out that in only hve per cent of the former cases did the temperature continue over three days, and that it differed widely from Wimberley's 1909 outbreak 7-day fever at Nowshera, in which 77 cent of the cases had four or more days fever

"For the above reasons I am still of the opinion that epidemic dengue, 7-day and 3-day fever are distinct diseases, but it will be impossible to arrive at a generally accepted opinion on the subject until the causative organisms are recognised, which is not likely to be soon if they are all ultramicroscopical, as appears to be the case It is obviously much easier to lump them all together than to make carefully recorded observations on hundreds of cases to work out the points of differentiation, such as can alone advance our knowledge, but fortunately the subject is of more academical than practical importance, is these fevers are scarcely ever scrious, while we have no specific treatment for any of them my own part I am quite content with having differentiated 7-day fever from typhoid and malaria, with which it was almost invariably confused before I described it as a result of two years, minute study of 1,350 consecutive fever cases at the Calcutta European General Hospital a discovery, the importance of which will be in no way affected by the particular name which is eventually applied to the commonest, although previously unrecognised fever of Europeans in Cilcutta'

### Connespondence

#### THE CIVIL SURGEON AND THE INDEPENDENT LOCAL PROFESSION OF INDIA

To the Editor of "THE LANCEI"\*

SIR,—In your issue of 8th March 1913 von have, in a leading article, commented on the relations between the Indian Medical Service and the non official practitioners of India, and your conclusions are frankly dependent on the views of a Special Correspondent who is "intimately acquainted with the facts" If I can show you that his "facts" are often incorrect and his implications as frequently unfair, I trust incorrect and his implications as frequently unfair, I trust incorrect and his implications as frequently unfair, I trust incorrect and his implications as frequently unfair, I trust incorrect and his implications as frequently unfair, I trust incorrect and in the control of the contr you will feel at liberty to reconsider your views I propose to deal with that part of the service in which I am working, not because I believe that the case there is any stronger than not because I believe that the case there is any stronger than it is in other part, but because I can give you facts at first hand regarding it I trust that you will accord to my communication an equal publicity to that given to the remarks of your Special Correspondent.

He divides the ordinary run of I M S officer in Civil employ into District Surgeons and Civil Surgeons and is indeed at some pains to prevent their being confused. This is this traceuracy. The whole of British India is divided

is his first inaccuracy. The whole of British India is divided into districts, and each district contains in the vast inagority of cases, one I M S officer only. In Madras he is called

\*[Copy of letter to Lancet herewith published -ED, I M G]

the "District Medical and Sanitary Officer," and over the rest of India, "The Civil Surgeon" These are morely different names for officers performing the same duties. There are in Rangoon 2 Civil Surgeons, who are I believe, prictically Presidency Surgeons, and there are a few canton ments in which an officer in military employ is given the title of Civil Surgeon but apart from these I know of no instance where the Civil Surgeon is not in charge of a district. This does not imply an intimate acquaintance with the ficts. The second matter on which no man "intimately acquainted with the facts" would make an error is in stating that the usual fee in India is Rs 15. Certainly over the whole of the north of India it is invariably Rs 16.

The third matter is an omission, and a serious one in face of the statement that the medical cost of a lengthy illness is not inconsiderable. I refer to the system taken advantage of by most Europeans and some Indians of paying a fixed yearly sum to the Civil Surgeon for the care of their families, whether well or ill, a form of insurance which is usual, and which entails no hardship on any one. This leads naturally to the fourth mis statement, made and repeated, namely, that families of Government servants are in certain cases entitled to the free services of the Civil Surgeon. Civil Government officers are not entitled to the

repeated, namely, that families of Government servints are in certain cases entitled to the free services of the Civil Surgeon Civil Government officers are not entitled to the services of any medical officer for their families, though military officers are, so that the affecting picture of the official, paying in disgusted silence the reluctantly—attending Civil Surgeon in order to induce the latter to give more willingly a service to which the former is entitled as a right for his family is entirely a work of imagination. This, however, does not make the implication any the less galling even though it is accompanied by the obviously false imputation that the official in India is not sufficiently honest to see any thing dishonourable in drawing a hugely inflated trayel any thing dishonourable in drawing a hugely inflated travel ling allowance bill

Fifthly, we come to another affecting picture, that of the subordinate who is not entitled to the services of the Carl Surgeon, but requires them pays for them and is silent. The sting is in the word "silent." It implies that there is something underhand about the proceeding. Of course there is not. Is the civilian doctor who is, we are told going to replace the service of force required to the force of the civilians. there is not Is the civilini doctor who is, we are told going to replace the service officer, going to treat for nothing any but those entitled to his services. Of course not The position is precisely that which obtains in England there is always the hospital for those who cannot pay, and where the Civil Surgeon may be consulted by the poorest. As a matter of fact hospital abuse is becoming a very serious factor in India, and is a matter on which the independent medical practitioner of India has a very real grievance against hospital officers although your correspondent gives no indication of the fact. indication of the fact

practitioner of India has a very real grievance against hospital officers although your correspondent gives no indication of the fact

Sixthly it is necessary to speak plainly on the matter of colour. Your correspondent imagines that the white population will not be averse to a stationary civilian surgeon. Obviously, if the independent profession is to be local, this officer will in nearly every case be an Indian. You may of may not sympathise with it you may not may not understand it, but you cannot ignore the intense repugnance with which the European in India, views the suggestion that his wife should be examined and conducted, let us say, through a confinement, by an Indian. The matter introduces far reaching political questions on which I have no intention of touching, but I have had to introduce it in order to give your correspondent's suggestion a flat contradiction.

Seventhly, we come to what is really the cruy of the whole matter. I refer to the two statements which supplement to explain one another, namely, first that the interests of the I M S and of the independent local profession are opposed to one another, and, secondly that it must be understood that he (the civil surgeon) acts in most cases as a general practitioner in attendance on the patient and not merely in a consultative expectly to his subordinate. It is no use my giving merely a direct denial to this statement, it can only be controverted by facts and there is no possible way of presenting these except by giving a personal experience. The station and district of which I am Civil Surgeon is acknowledged to be a "good" one I divide my patients into two sets, Buropean and Indian. To Europeans I fanishy act as a general practitioner, and were I not a medical man I should strongly resent any suggestion that I and my fimily should be treated in any other way. My practice among Indians is as practices outside the Presidency Towns now go a "good" one but in spite of this fact I have seen since I came here about 17 months ago, three Indian pati

being called in by members of the independent local profession, either at their own instance, or at that of the patient, or his friends, and I may add that any reduction of my usual fee is entirely at the discretion of the practitioner who calls me in I absolutely deny any opposition in interest between myself and the members of the independent local profession. I absolutely deny that their efforts at private practice are frustrated by the existence of the "subsidised private practitioner of the Government" as represented by myself. On the contrary, I merely provide them with the consultative aid which they wish and which both they and their patients have every right to get. To refuse to the sick and to their medical attendants consultation and from one who is in nearly every district marked out by experience and who is in nearly every district marked out by experience and qualification as the person best able to give it would surely be an act of folly and one which would be strongly resented

be an act of folly and one which would be strongly resented by the very people whom it is supposed to benefit. It would seem that your correspondent is disposed to look on the improvement of the local independent profession as an end, and not as merely a means towards the betterment of the lot of the sick Indian. Would anyone in England seriously suggest that the public should be debarred from the advantage of the experience gained by the Physicians and Surgeons of our great British Hospitals, unless they be hospital patients 'You cannot justly suggest that conditions should be different

ın India

If the facts I have given were singular they would have I am only however one of many in piccisely similar no value I am only however one of many in precisely similar case, and I have merely brought in these personal matters as being the only way of showing that your correspondent is most decidedly not intimately acquainted with the facts. He has not been fail to the service either in factor in impli-He has not been fail to the service either in fact of in implication. If the I M's officer is debuted from private practice the suggestio, obviously is that you will get an equally good man as a consultant. If the matter is reasoned out it comes to this. Is it to be expected that you will get the same professional standard from a man who is to be dependent entirely on the fees now made by the Civil Surgeon, as from one who has both his pay and fees to live upon. One can scarcely expect to get in the future an article of equal value for from half to one third of the cost now made. for from half to one third of the cost now prid. As a matter of fact, it would not suit those who want later to replace the Indian Medical Service Officer as Civil Surgeon to have the right of private practice now taken away from the Civil

Surgeon
Your Special Correspondent is not only inaccurate, but he is also angallant, for he has entirely omitted all mention of the ladies. In this part of India the purdah system is dying, so far as doctors are concerned The lady dector is nearly so far as doctors are conceined. The lady doctor is nearly always in direct competition with the male except in the matter of obstetric and gyn cological work, and even here the man is coming in so rapidly that the woman's monopoly will, in my opinion be broken by the time that the next generation has grown up. Possibly to his ignorance in other matters your Special Correspondent adds that of the fact that the sufficient has not activated. fact that the suffrigette his not vet invided Indi, so he his covered his rudeness to the lidies by taking refuge behind the

purdah of anony mity

I am, Su, &c CLAYTON LANE, M D (LOND), MAJOP, IMS, Civil Surgeon

BERHAMPUL, BENGAL, 2nd April 1913

#### COCOANUT OIL AS AN INSECTICIDE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIL,—With reference to the extract from the United States Public Health Service Reports on the bed bug, by Di W C Rocker, published in your issue of February last, I would point out for the information of the readers of your valuable journal and of all who are interested in the destruction of this cannot insect that coconnut oil is a very effective insected in this connection. Its use as supplied to the fifth of the connection. insecticide in this connection. Its use is simplicity itself, all that is necessary is to smear a little of the oil over places where the bugs are found. Where there are cracks of creaces requiring treatment the oil should be dropped into them By an intelligent use of coconnut oil any barrack of Hospital Ward of articles of functine of bedding, can mashort time be freed of bugs and with a minimum amount of disturbance or upherval, and furthermore a little care devoted to the use of this oil where bugs are likely to bugsday ill keep any place free of them.

to breed will keep my place free of them

2 If any of your renders wishes to test the efficiely of coconnit oil as an insecticide in the case of the bed bug he has only to exact a little of the oil on a smooth and and has only to smear a little of the oil on a smooth surface and drop a few bugs on to it. It is surprising to see how quickly this insect, notwithstanding its usual vitality, dies in such a situation.

The methods of disinfection mentioned in the extracts referred to above viz, funigation with sulphurous and hydro cyanic acid gases except under a pressure of several atmos pheres could not be expected to be of much use in dealing with deep cracks and crevices infested with bugs and besides owing to the danger of such gases then use is ordinarily impracticable. Then it is a question whether the ova would be standard by such gases.

improcticable Then it is a question whether the ova would be sterilized by such gases. Cocount oil will without fail destroy ova as well as the adult insect.

4. The use of cocount oil as a bug destroyer was brought to my notice by my Lady Superintendent some years ago, and its introduction into this hospital has been a source of great satisfaction in dealing with the big pest

5 I shall be greatly obliged if you will kindly publish this letter in the Indian Medical Gazette as I believe it is not generally known what a valuable insecticide cocoanut oil is in dealing with bed bugs

> Yours faithfully, THOS JACKSON, UB, LT COL, IMS, Civil Surgeon, Ahmedabad

March 1913

[Ne command this simple insecticide to the notice of our renders —ED ,  $I\!\!\!/\!\!\!/ M\!\!\!/\!\!\!/ G$  ]

#### SMITH'S OPERATION

To the Editor of "THE INDIAN MEDICAL GAZETTF"

SIR,-In the present unsettled state of opinion, it seems the duty of every man, who has made a fair trial of Smith's operation for catainet, to give his opinion thereon. After an experience of about five hundred operations on the old lines I tried extraction in the capsule from Colonel Smith's description, and was well satisfied with the result in com-pairson with the old operation. As I had an unduly large escript of viticous, I visited Amuitsu and was kindly shown by Lieutonant Colonel Smith the exact technique. I have done over fifteen hundred operations on his lines and am very much pleased with the result. My percentage of vitreous escape is about eight per cent, and I can say that a moderate loss does not seem to effect the subsequent vision. The great and chief advantage is the practical abolition of A large proportion of my cases were operated on in Bruch Dispensives, and the cases left to the care of Sub Assistant Surgeous I would never have dated to have performed the old operation under those culcumstances owing to the great amount of care needed in the after treatment Practically the only complication is a somewhat increased tendency to prolapse of the ris, but with increased experience in the ait of properly replacing it, which has been enoneously called 'stirring up the vitreous," the incidence of this complication has much diminished. I learn, by hearsay that a number of men, doing what they call Smith's operation have a 40 or 50 per cent escape of vitreous. Although a moderate vitreous loss is not a disaster, as it was deemed in the old days, it is undesirable mainly because it causes increased change of his prolapse, and I would strongly advice any man with a lurge percentage of vitreous loss to to the great amount of care needed in the after treatment idvice any man with a luge percentage of viticous loss to visit Colonel Smith who, I am suic, would be glad to show him the best way of doing the operation. In conclusion, I would like to thank him waimly for his valuable and and advice

Yours truly, R G TURNER, FRCS, LT Cot, IMS, Civil Surgeon, Naini Tal

#### "BLUE PATCHES ON NEWBORY INFANTS" To the Editor of "THE INDIAN MEDICAL GAZETTE"

Sir,-Would you kindly allow me a little space in your well esteemed journal to insert a few passing remarks of my experience on Dr. Newell's theory of the causation of blue patches on newborn infants, which he attributes to be the effect of pressure (intermittent) caused by the method of Indian women tying their skirts on or about the level of the umbilious. This theory is my driving does not hold good in umbilicus This theory, in my opinion, does not hold good in cases of Khasi women, who neither the their skirts on that level nor do they bind any string, belt or anything around their abdomen, but still you can see the distinct patches on every newborn child. If, however, the effect of such a so called pressure had to do anything with the inducet causation of blue patches, then I suppose the children of Khasi women would not have been subjected to such patches as said to be in cases of European ladies. On the other hand, I crave your indulgence to infer that it is hardly possible that tying the skirts (tightly) on the umbilical region can umbilieus This theory, in my opinion, does not hold good in

cause such a pressure, if any (remittent), on the child in utero, so as to destroy the delicate vessels, the child, as it were, remains floating in the uterine cavity, with a free movement up to the first stage of delivery, and, therefore, no pressure remittent or intermittent can possibly produce the same mark identical on every child and with an uniform deg ree, despite of its various sites I have noticed those patches generally on the sacral region but on the availary region, inner and anterior surface of the thigh and on the nape of neck, instances are not uncommon although rare Mr Editor, how one can account for the patch occupying the inner surface of the thigh, if you are to agree with the pressure theory? Another interesting point is that I have noticed those peculiar patches very faint, if any whatever, during the first 3 days of the child's buth and develops gradually along with its growth, and fades away in about 16-20 months

In a recent case of triple bith which I had to deliver manually, I noticed the patches on the sacral region of every child, well marked on the 5th day, the buttocks of all of them, I think, were not on the same position in utero, under the same uniform pressure, causing the blue patches

inder the same uniform pressure, causing the blue patches indirectly occupying the same position!

Lastly, I beg to let you know that my experience on the subject covers only two years since 1911, and I had the opportunity of examining many different creeds and nations of this Province as well as of Bengal (East)

I 1 emain,

Sır,

SHELLA. KHASI HILLS, Yours faithfully J C MITTER,
Sub Asst Surgeon

#### DENGUE AT MEERUT

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR-1 Dengue or Breakbone fever which recently swept over many parts of India has never been seen by the present

over many parts of India has nevel been seen by the present generation, because its previous attack of this country was as far back as 1872. The description of the previous epidemic appears to be identical with the present one.

2. The recent epidemic like the previous travelled from the East to the North West of the Indian Empire in rapid succession from place to place leaving many small towns untouched in the course of its march onward. It appeared in the Meerut City in the last week of August, and during the 2nd week of September its merchenesses of what nearly 2nd week of September its pievalence was so wide that nearly every family had 1 or 2 cases, and in the 3rd week its severity was so great that men in the streets were talking about it, no sooner one got over the other was serzed. But in spite of all this the sufferers had consolation of going safely through the disease. Only about  $\frac{1}{16}$  of the populace remained immune. I treated nearly 1,400 cases of this as out door

As its invasion was sudden, its march off the city was of It lingered up to the last week of November A typical case of the piesent epidemic may be described 3

not so

as follows

A sudden onset of fever with severe pain in joints, muscles In a few hours the temperature rises to 103 or and headache 104, feels great distress from pains and becomes bedidden, cannot move even for calls of nature and in fact quite resembles rheumatic fever, several joints are attacked at the same time. He perspires several times in a day but the temperature does not fall with it. Pulse rapid and full. As a rule bowels are constipated, but sometimes diarrhear supervene especially in children Nausea and vomiting are supervene especially in children. Nausea and comiting are frequently troublesome, dry tongue, intense thirst, no appetite. The quantity of urine is not diminished but rather increases. On the 2nd day the temperature remains at the same level and the joints are still prinful. Now the tongue is coated with dry fur. On the 3rd dry or after 48 hours the temperature begins to fall and the pain becomes less severe, the nause and comiting leave him, but still dislike for food. On the 4th day or after 72 hours, the crisis are the fever abates, leaving the patient in great prosta. dislike for food. On the 4th day or after 72 hours, the crisis sets in, the feven abates, leaving the patient in great prostia tion and debility. The lash or eluption which generally appears on the 2nd day varies in character being either roseolous, robeolus, urticarial or like prickly heat with severe itching. Very often it continues several days during convalescence. Generally the pains abate with the fever but the results remain painful for some time after. onvalescence Generally the pains above with the fever but in some cases the joints remain punful for some time after ward. In a small percentage the joint pains are insignificant. Some have congestion of throat and swollen one of two gums. A few are seen with inflamed lymphatic glands. Many complain a sense of oppression in the chest and shallowness of breathing like cardiac asthma

5 The disease appears highly infectious but I think the food and drinks are not carrier of the virus Meerut was suffering from cholera for many weeks before the dengue appeared, for which in my family boiled water was exclu

sively used for drinking purposes and Permanganate of sively used for drinking purposes and Permanganate of Potash was mixed in the water used for all other purposes, and nothing was eaten except the food cooked in the house. In spite of these precautions every member of the family suffered from Dengue, which clearly shows that food and water are not the medium of the disease germs but something else, i.e., are, etc. At this time there were a few mosquitoes and very few malarial fever cases but swarms of flies. The incubation period is not more than 5 days. In about 30 per cent cases relapses occurred with less acute symptoms. 6 Whether treatment or no treatment, every sufferer got

6 Whether treatment on no treatment, every sufferer got over the disease. Those who came to the City Dispensive were given a purgative at the outset, followed by display the control of the city of the control of the city of the control of the city of the cit netic mixture, soda salicylate and tincture iodine in small dose to check the vomiting, lime juice and sharbat for thirst which was always much appreciated, cold water to the head to relieve headache, and some sedative limiments to rub over the joints, and other suitable medicine for occasional symptoms

MEERUT, March, 1913

Yours, etc. SOLEIMAN KHAN, KHAN SAHIB

### THERAPEUTIC NOTICE, &c

NESTLE'S MILK-MILKMAID BRAND

WE publish the following analysis recently made by Major F N Windsor, I MS, Chemical Examiner to the Government of Bengal —

"The following is the result of analysis of one sample of milk forwarded for examination personally on February 24th,

One intact tin of "Milkmaid" Brand Sterilized Natural A very small piece of butter had separated from the

The fluid milk gave the following results -Smell & taste-good and of fresh milk 1028 Specific gravity 4 4 per cent 0 52 .. .. Fat Mineral matter 0 52 ',, 2 98 ',, ,, Proteid 4 40 ,, Lactose ,, 87 7 Water 100 00

Preservatives not detected "

We are firm believers in this excellent brand of milk and always use it when on tour and travelling No person should use the milk provided at Railway Refreshment rooms when this admirable and pure milk is available in tins of all Sizes

Messis J & A Churchill me about to publish an important new book entitled "The Difficulties and Emergencies of Obstetric Practice" by Mr Comyns Berkeley and Mr Victor Bonney, Obstetric and Gynrecological Surgeons to the Middle sex Hospital The illustrations are all original and very numerous. They are, moreover, the design of an expert

Messrs Burioughs, Wellcome & Co have now put on the market "Tabloid" BISMUTH GAUZE The gauze is in pregnated with bismuth salts and is odonolen and nontoxic, but antiseptic Each Carton contains 6 yds but is made up in various sizes and packings

various sizes and packings

The same firm have brought out crystalline Digitalia, which is official in the French codex and corresponds to the German Digitosin. The tabloids are an accurate and convenient way of administering this potent drug.

The firm of E Leitz (18, Bloomsbury Square, London) have recently issued a guide to photomiciography primarily prepared for users of apparatus made by the firm, but discussing also general principles. Among the subjects dealt with are the selection of a place for setting up the apparatus, the mode of photographing solid objects and the method of obtaining stereoscopic photographs. Photographic details are well discussed as are also the preparation of latitern slides and chematograph pictures. The firm has also issued a pamphlet giving directions for the use of the large metallurgic microscope with camera for the study of metals.

the study of metals ne study of metals

The Hoffman La Roche Chemical Works, Ld., offer
Their Chemical Works, Ld., offer
Their

specimens of their preparations to physicians for trial. Their high repute is well known. The address is 7, Idol Lane, E.C., London.

The Medical Times has recently had an article on the value of Phenalgin as an analgesic. It is said to be harmless but is a effective pain reliever and is especially useful in "bilous" conditions. Combined with salicylate of sodium it is used with effect in respiratory troubles. is used with effect in respiratory troubles

We have received an article by Di Liwson Brown on the value of Lactagol (E G Pearson & Co, Ld, 49, Witting St, London, EC) It gives a number of cases where the use of Lactagol greatly increased the supply of mother's milk It is certainly to be tried in cases where an apparent want of milk is made a reason for depriving a child of nature's sustenance

### Sprvice Motes

Of the extra pensions of £100 to officers on the selected list (A R I, Vol I, pria 734, and Seton and Gould's Manual, p 118) for the Financial year 1913 14 one has been allotted to Lieut Colonel Henry R Woolbert, MB, FRCs, Agency Surgeon, who has been on leave out of India since 30th March 1912 and will retire on 30th June 1913, and the second Bengal establishment pension goes to Lieut Colonel J R Adie, MB, who has been on leave out of India since 12th April 1912, and the pension will have effect from 22nd March 1914 In Bombay Lieut Colonel J Crimmin, vc, cieties on 2nd December 1913 on completing of 30 years' service for pension, and he will receive the Bombay special pension Up till now there is no claimant for the Madras special

Up till now there is no claimant for the Madras special

A GLANCE at the April Army list will show two vacancies on the selected list for Bengal and these have been filled up by the advancement of Lieut Col G F W Braide, I M S, Inspector General of Prisons, Punjab, and of Lieut Col R J Marks, I M S, a Civil Surgeon in the United Provinces, both of whom have completed 26 years service. These officers take the place of Lieut Col J J Pratt and Lieut Col Cadell, retried

In Bengal, however, a few more vacancies must soon occur by the long deferred promotion of Lieut Col Driny, the I G C H of Bilia, the retirement of Lieut Col Woolbert in June 1913, and early in 1914, by the retirements of Lieut Col Adie and Colonel Neil Campbell, CB, CIE In Bombay Lieut Col M A T Collie retires on 29th June 1913 In Madras there will be a vacancy on 29th June by the retirement of Col H St C Carruthers as I G C H, Burma

Burma

COLONFI G F A HARRIS, CSI, FRCP, IMS, having gone on 7 months, furlough, Colonel W R Edwards, CMG, IMS, acts as Inspector General of Civil Hospitals, Bengal, with effect from 11th April 1913

LIEUTENANT COLONEL C R GREEN, FRCS, IMS, Professor of Midwifery at the Medical College, Calcutta, having gone on 8 months' fur lough, his place is taken by Major Holdich Leicestei, V D (London), M R C P, F R C S (England), who comes in from Bihai and Olissa, where since his leturn from leve he has been a Civil Surgeon

SURGEON GENERAL SIR COLVIN COLVIN SMITH, RCB, Madras Medical Service, (retried), died at his iesidence, 5, Ciesswell Gardens, South Kensington, on Saturday, 1st March 1913 He was the son of the late Revd Robert Smith, DD, of Aberdeen, and was born on 4th August 1829, educated at King's College, Aberdeen, where he took the MD in 1851, also the LRCS of Edinburgh in 1850, and entered the Madras Medical Service as Assistant Surgeon on 3rd November 1851 He became Surgeon on 14th December 1864, Surgeon Major on 3rd November 1871, and Deputy Surgeon General on 5th Algust 1879, returing with a step of honorary rank on 29th September 1884 He had a long list of war service, beginning with the second Burmese War in 1852 53, when he served in the operations before Raugoon in April 1852, at the capture of the White House Stockade and of the Shwe Dagon Pagoda, and the occupation of Prome, receiving the medal and clasp In the Mutiny he served from 1857 to 1859, with the Kampti Moveable Column, and with the Sagul Field Division, taking part in the affairs at Khom Pass, Narainpur, Nimkaira, Budgam, and other minor shirmishes on the Great Dekkan road, also in operations in the Palamau district, and in the march to Jabalpur, and received the Mutiny me al, with a clasp When serving as Deputy Surgeon General of the Haidarabad Subsidiary Force and Haidarabad Contingent, he was appointed Princi War in 1882, took part in the Battle of Tel el Kebin and in mentioned in despitches in the London Gazette of 17th clasp, the Khedive's bronze star, the third class of the Osmunch, and the CB He was also appointed an Honorary

Surgeon to the Queen on 5th July 1899, received a good service pension on 18th January 1903, and was promoted to K C B on 26th June 1903

In the London Gazette of 4th March Sir Richard Havelock Chailes, GCVO, is granted the temporary rank of Surgeon General, dated 28th February 1913, while holding the office of President of the Medical Board, India Office

THF publication of the second supplement to the Dictionary of National Biography, containing notices of men of importance who have died between 1901 and 1911, has now been completed. Short lives of the following I M S men are included Vol I-Surgeon General J M Cunningham, by D'Arcy

Power

Vol II—Sir Joseph Fayier, by H P Cholmeley, M D
Sir William Gujer Hunter, by D'Arcy Power
W W Ireland, by D'Arcy Power
Sin George King, by Sir David Plain
Vol III—Di William Smoult Playfair, by H by H. D. Rolleston

MAJOR FRANK DENNIS BROWNF, of the Madius Medical Service, died of pneumonia at Naushahra on 19th February 1913 He was born on 26th October 1869, educated at Leeds and Newcastle, took the MB, Durham, with Honours in 1893, and entered the LMC as Surgeon Legitlement on 199th Let. and New castle, took the MB, Durham, with Honours in 1893, and entered the IMS as Surgeon Lieutenant on 29th July 1896, being one of the last batch commissioned to the separate Presidential Services. The next batch were the first on the General Service list. He became Captain on 29th July 1899 and Major on 29th January 1908. Most of his service had been spent in military employ, but he acted for some time a few years ago, as Civil Surgeon of Port Blair, in the Andaman Islands. His regiment was the 112th Infantry, formerly the 12th Bombay Infantry. The Army List assigns him no war service. him no wai service

It has been decided that Indian Military Law will no longer be taught at the R A M C School, but instruction will be carried out regimentally in India

THE Secretary of State has sanctioned the creation of a whole time Professor of Pathology at the Grant Medical College, Bombay This is a new I M S appointment, and does away with the old system under which the chair of Pathology was held by the 2nd Physician J J Hospital

At the same time the 2nd Surgeon J J Hospital' will no longer hold as a collateral charge the Professorship of Ana tomy, which it is intended should in future be a whole time appointment to be filled, if possible, in India, from outside the ranks of the Indian Medical Service

THE Secretary of State has decided that, while held by I M S officers, appointments in the Bacteriological Depart ment shall be regarded as cadre ones

Army Department to The No. 5844 1 (Q M S), dated 13th Febru 1913

No. 403 of 1908 and No. 110 of 1910, it is notified for information that the Government of India have sanctioned the issue of identity discs with cords and the such of the officers proted below, as Army Department letter No 5844 1 (Q M G S), dated 13th Febru ary 1913 to such of the officers noted below, as have not already received a free issue

at Home -

Staff Officers British officers with British and Indian units, including the Supply and Transport Corps Indian Officers

Officers of the Royal Army Medical Corps
,, ,, Indian Medical Service
,, ,, Army Veterinary Corps
,, ,, Ordnance Department

2 The first issues will be free Thereafter the articles will be kept up at the expense of the officers

3 Discs with cords will be issued to regimental officers from the reserves maintained in their units, the reserves being replenished by including the numbers issued in requisitions on Aimy Clothing Factories Issues to Staff officers and those in Departments will be made on requisition from Aimy

Clothing Factories

4 The discs of regimental officers will be marked regimentally and those of other officers in Aimy Clothing Factories When demanding discs ready marked from Clothing Factories, officers concerned should give complete information

negarding the marking required, ride India Army Order
No 403 of 1908

5. A further notification will be

A further notification will be published when factories will be able to supply discs with cords

CAPTAIN C A F HINGSTON, IMS, is due back from furlough on 8th May

CAPTAIN M J QUIRKF, IMS, is due from combined privilege and study leave on 28th May

CAPTAIN H STOTT, IMS, reported for duty as Surgeon to H E The Governor of Madras on 4th February

MAJOR A G McKENDRICK IMS, was granted two veris combined furlough and study leave and is not due out till 23rd February 1915

HIS Excellency the Governor of Bombay in Council is pleased to appoint Assistant Surgeon Yashavant Govind Nadgii, L V & S, to act as Civil Surgeon, Bijapur, during the absence, on deputation, of Captain M S Irani, I W S, or another factors. pending further orders

THE Director-General, IMS, has assued the following

"Indian Medical Service officers in Civil employment desirous of obtaining non-entitled indulgence passages for themselves and their families, should submit their application on I A F Y -1727 direct to the General Officer Command ing of the Port of Embarkation at Bombay or Kunchi

CAPTAIN F P WERNICKE, MB, IMS, acts as Civil Suigeon, Pachmarhi, during the season of 1913

CAPTAIN W J POWILL, IMS, on general duty is appoint ed to act as Superintendent, Central Jul, Jubbulpore

MAJOR C H BENSITY, IMS, is appointed to the Central Jail, Nagpur

CAPTAIN W J FRASFR Mr Chr, FR(S, IMS Civil Surgeon Chlindwila is deputed to undergo a course of instruction in Malariology at Dellin

MAJOR V H ROBERTS FROS INS Civil Suigeon, Seoni, is placed in visiting medical charge of the Chhindwaia District

THIRD Class Military Assistant Surgeon A R Emmett Sub Divisional Medical Officer Ellichpur Amiaoti District, is deputed to undergo a course of instruction in Malariology at Delhi

COLONEL W G KING, CIF, INS (lettred) late Sanitary Commissioner with the Government of Madias has been appointed lecturer in Applied Hygiene in the Tropics to King's College, University of London

THE following changes in Burma are gazetted --

On his relief by Mr F X D'Attrides LM & 8 (Bomb) Senior Military Assistant Surgeon, and Honorary Lieute nant L K Rodingues, LM & 8 (Mad), LRCP & 8 (Edin), Civil Surgeon Katha is appointed to be Civil Surgeon Falam, in place of Senior Military Assistant-Surgeon and Honorary Lieutenant A E Hamlin, transferred

SECOND Class Military Assistant Surgeon H T L Duck worth is appointed to be a Civil Surgeon permanently, with effect from the 2 id May 1910 consequent on the reversion of Second Class Military Assistant Surgeon H J Willes to a subsiderate class (20) subordinate charge

First Class Military Assistant Surgeon W L Brookes is appointed to be a Civil Surgeon permanently, with effect from the 13th June 1912, consequent on the retirement of Senior Military Assistant Surgeon and Honorary Mijor Senioi Milit A H Nolan

THE services of Captain Ba Ket MB, IMS, an Officiating Civil Surgeon in Buima are replaced at the disposal of the Government of India in the Home Department

CAPTAIN H B SCOTT I MS, Officiating Resident Medical Officer, General Hospital, Rangoon is appointed to be Resident Medical Officer General Hospital Rangoon, sub protein with effect from the 7th November 1912, in place of Major H A Williams, DSO, IMS, transferred

Major P F Chapvan, IMS, Civil Surgeon, who was granted combined leave by Order No 487, dated the 7th Maich 1912, was on study leave from the 14th October 1912 to the 31st January 1913

Major A M Fieming, I ws, Civil Surgeon, who was granted combined leave by Orders No 2042 dated the 14th November 1911, and No 1379, dated the 20th July 1912, was on study leave from the 2nd to the 31st December 1912 (thuty days)

Eight months' furlough is granted to Captain A E Gise wood, I M S, Chief Plague Medical Officer, Central Provinces, with effect from the 12th Much 1913, or the subsequent date

ON return from the combined leave granted him the services of Major W H Kenrick LRCP, MPOS DTM, IMS, are placed at the disposal of the Samtary Commissioner, Central Provinces, for employment on Malaria Survey duty in the Central Provinces

LIPUTLNANT COLONFI J T CALVIRT, MB, MRCPDPH, IMS, Pinneipal and Professor of Medicine, Medical College, Calcutta, and First Physician to the College Hospital is, with effect from the afternoon of the 7th March 1913, granted privilege leave for three months combined with furlough for six months in continuation

LIEUTENANT COLONFL B H Drine, MRCP, Drift, MS, is appointed to officiate as Principal and Professor of Medicine, Medical College, Calcutta, and First Physician to the College Hospital, during the absence, on leave, of Lieutenant Colonel J. T. Calvert, M. L., M. P. C. P. P. P. H., 1 M. S.

MAIOR D McCAY, MD, MPCP, IMS, Professor of Physiology, Medical College, Calcutta, is appointed to officiate as Professor of Materia Medica, Medical College, Calcutta and Second Physician to the College Hospital, during the absence of Lieutenant Colonel B H Deare, MRCP, DPH, IMS, on other duty

DR W C Hossack Health Officer of the Port of Calcutta, has been allowed privilege leave combined with furlough for six months

DR C BANKS, Protector of Emigrants, Calcutta and Superintendent of Emigration, is appointed to act as Health Officer of the Port of Calcutta in addition to his own duties during the absence, on leave, of Dr W C Hossack, or until further orders

CAITAIN D P GOIL INS, Civil Surgeon, Mymensingh, has been allowed privilege leave combined with study leave and furlough for two years and eight months

MAJOR W MACKELVIE, I MS has been granted by His Majesty's Secretary of State for India, an extension of leave for five months, viz, study leave for three months and furlough for two months

THE services of Major H M Mackenzie, IMS, are replaced at the disposal of the Government of India in the Home Department, with effect from the date on which he relinquishes charge of his duties in the Bahawalpur State

CAPTAIN C F MARR IMS, has been granted an extension of leave on private affairs

CAPTAIN A K MUNPO, IMS, is appointed to the substantive medical charge 128th Pioneers vice Captain W J Flaser, IMS, and Captain A G Wells, RAMC, specialist in operative surgery 3rd (Lahore) Division, from March 25th, 1913

IMEUT COLONFL R H ELIIOT I WS, has an interesting article in *The Ophthalmoscope* on the use and management of self lit ophthalmoscopes in use in the Madias clinic

CAPTAIN T C BOID, IMS, FRCSI, has taken the D P H of the Royal Colleges of Physicians and of Surgeons, Iteland

In modification of so much of Government Notification No 2031, dated the 11th March 1913, as relates to the appointment of Lieutenant Colonel A Street, MB (Cantab), FRCS, IMS, His Excellency the Governor of Bombay in Conneil is pleased to appoint that officer, with effect from the 15th idem, Acting Senior Medical Officer J J Hospital, and sub proftem Principal Grant Medical College in substantive addition to his own duties, pending further orders

WITH reference to Government Notification No 1986, dated the 10th March 1913, His Excellency the Governor Conneil is pleased to appoint Assistant Surgeon Mancherji Jamespi Mistri LM & 5 to act as Civil Surgeon, Surat, in addition to his own duties from the dute of departure on leave of Major I H McDonald, MB, CM (Edin), IMS, pending the arrival of Major R W Anthony, MB, CM (Edin), FRCS (E), IMS

MAJOR T STODART, MB, is promoted to be Lieutenant Colonel I MS, with effect from 30th January

SFNIOR Assistant-Surgeon and Honorary Lieutenant Henry Lovell William Clark is removed from the service, with effect from 10th March 1913 Lieutenant

He was hanged for the Agra murders on 26th March

The services of the undermentioned officers are placed permanently at the disposal of the Government of Madras — Captain L Husch MRCS, LRCP, IMS Captain D S A O'Keeffe MB, BCh, IMS Captain A C Ingram, MD, IMS

MAJOR J H McDonald, MB, CW (Edin), IMS, 19 granted, from the 19th Much 1913, or the subsequent date of relief, such privilege leave of absence as may be due to him on that date in combination with furlough for such period as may bring the combined period of absence up to eighteen

His Excellency the Governor of Bombry in Conneil is pleased to make the following appointments — Lieutenant Colonel C T Hudson, I M 5, on return from leave, to be Civil Surgeon, Dharwán Major R W Anthony, M B, CM (Edin), FRCS (E), I M S, to do duty as Civil Surgeon, Surat vice Major J H McDonald, M P, CM (Edin), I M S, proceeding on leave

LIFUTENANT COLONEL W E Jennings, MD, CM (Edin), DPH (Dub), IMS, having gone on deputation to levin work of P M O in the Military Department, the following officiating appointments are gazetted -

Lieutenant Colonel J Climmin, VC, CIE, DPH (Ite), INS, to act as Health Officer of the Port of Bombay Lieutenant Colonel S H Burnett MB, CM (Abdn), IMS, to act as Picsidency Singeon, Third District, and in medical charge of the Common Prison, House of Correction and Brazilla Schools in addition to be one duties. and Byculla Schools, in addition to his own duties

HIS Excellency the Governor of Bombry in Council is pleased to make the following appointments tice Lieutenant Colonel C H L Meyer, MD, ES (Lond), I US, lettring (15th March 1913)

(15th March 1913) —

Lieutenant Colonel A Street MB (Cantab), FRCS, INS, to act as Senior Medical Officer, J J Hospital, and Principal Grant Medical College, in addition to his own duties, pending further orders

Major E F G Tucker, MB, BS, MPCP (Lond), IMS, to he Second Physician and Registra, J J Hospital, but to act as First Physician J J Hospital, and Professor of Medical College during the absence of Lieutenant Colonel L F Childe MB (Lond) IMS of pending further orders to act as Second Physician and Registral, J J Hospital, and Professor of Pathology, the Major E F G Tucker, IMS, pending further orders

Captum R M Carter FRCS, DIM (Liverpool) IMS, and Professor of Pathology, the Major E F G Tucker, IMS, pending further orders

Captum A J V Betts, MB (Lond), IMS on return and Professor of Materia Medica and Pharmacy, Grant Medical College

THE following notifications are taken from the Burma Gazette -

Privilege leave for three months combined with failough for one very, and study leave for nine months, is granted to Captain R D Sargol, I MS with effect from the dite on which he may avail himself of the privilege leave

MAJOR J GOOD, I,MS, was granted by His Majesty's Secretary of State for India, study leave from the 1st October 1912 to the 31st December 1912

THE Lieutenant Governor accepts the resignation of his appointment tendered by Civil Assistant Surgeon Hussain Buksh, IR(P&S (Edin), LFP&S (Glas) with effect from the 18th March 1913, or the subsequent date on which he may be relieved of his duties

Privilege laive for three months and furlough out of India for four months in continuation thereof are granted to First C ass Military Assistant Surgeon E J Murphy, with effect from the date on which he may avail himself of the privilege leave THE Lieutenant Governor accepts the resignation of his

privilege leave

ON his relief by M. F. X. D'Attaides I M. & S. (Bom.), Senior Military Assistant Surgeon and Honorary Lieutenant I K. Rodriguez, I M. & S. (Mad.), LPCP & S. (Edin.), Chri Surgeon, Katha, is appointed to be Civil Surgeon, Monywa, in place of First Class Military Assistant Surgeon E. J. Murphy, proceeding on leave

LIEUTFNANT COIONFL R H ELLIOT, FRCS IMS, has been granted one month and 18 days' privilege leave on or after 2nd May 1913

MAJOR S. A. RUZZAK, I MS, is due out from furlough on 11th June 1913

CAPTAIN P L O'NFIL IMS, has been granted 18 months combined and study leave

THE promotion of Major Thomas Stodart, M.B., to that rank is antedated from the 29th July 1905, as notified in the London Gazette of the 15th May 1906, to the 30th January

The promotion of Major Herbert Armstrong Williams DSO, VB, to that rank is antedated from the 27th January 1912, as notified in the London Gazette of the 22nd March 1912, to the 27th July 1911

THE following hie promoted to be Senior Assistant Surgeons with the Honorary rank of Lieutenant from 7th December

1st Class Assistant Surgeon James Francis Fleming

1st Class Assistant Surgeon Edwin Joseph Min phy 1st Class Assistant Surgeon Edwin Joseph Min phy 1st Class Assistant Surgeon Robert Gunn Babonin 1st Class Assistant Surgeon Harry George Charles Mills

1st Class Assistant Surgeon Edward Gerald Alfred Prins

THE services of Captain F W Summer, MB, FRCSI, IMS, are placed permanently at the disposal of the Govern ment of the United Provinces

LIEUTENANT COLONEL H B MILVILLE, IMS, officiating chief plague officer, United Provinces to be confirmed in that appointment, with effect from the 20th February 1913

CAPTAIN J S O'NEILL, IMS, supervising medical officer, travelling dispensaries Benares, is placed on special, plague duty at Lucknow until further orders

LIFUTENANT COLONEL P J FREYER MD, IMS (retd) of St Peter's Hospital for stone, has been appointed on the Honorary Consulting Staff of the Queen Alexandra Military Hospital, London, the only service man so appointed

THE following changes have been ordered in Bihar and Orissa -

Lieutenant Colonel R Maddov, I MS, letting to Ranchi from Gra his place at Gya is taken by Major A F Stevens, I MS from Hazaribagh, Lieutenant Colonel Jordan I MS, goes to Hazaribagh as Civil Surgeon and Major J W Megaw on return from furlough, is posted to Monghyi Major V Lindesay, I MS, from Ranchi has gone on furlough

MILITARY ASSISTANT SURGEON C MULLINS 18 confirmed as a Civil Surgeon in Assam, with effect from 1st June 1912

SURGEON GENERAL A M CROFTS, CIL, Indian Medical Service, Deputy Director, Medical Services, 2nd (Rawalpindi) Division, has been appointed to officiate as Director General, Indian Medical Service, during the absence, on leave, of the Hon'ble Surgeon General Sir C P Lukis, KCSI, MD, FRCS, IMS, or until further order

CAPTAIN M A NICHOLSON, MB, Indian Medical Service, to be Medical Officer, Lawrence Military Asylum, Sanawar, vice Captain N S Simpson, Indian Medical Service, vacated, with effect from the 13th February 1913

THE undermentioned officers of the Indian Medical Service, having completed their courses at the Royal Army Medical College and at Aldershot, have been finally admitted to the service Their commissions will bent date the 27th July 1912 -

John Dykes Wilson, MB Laurence Allfrey Pelham Anderson William Calder Paton, MB James Bennett Hance, M B Stephen Gordon Harold Kirkby Rowntiee, M B Graham Yalden Thomson, M B Basil Franklin Eminson, M B Anthony Kennedy Sorab Dhunjibhoy Ratanagai Colin McIvai

A 1 m y Depirtment Notification No 822, dated the 29th Septem

WITH reference to the Notifications quoted in the margin Army Department the promotion of Major William Notification No 282, dated the 7th April 1911

Army Department Notification No 822, dated the 28th Septem to the 29th July 1908

MILITARY ASSISTANT SURGEON L V JAFNSCH, IS MD, assistant to Civil Surgeon, Nami Tal, to be a Civil Surgeon, with effect from the 16th February 1913, vice Captain F G Fox, retired, and to be posted to Hardon

MAJOR J N WALKER, I WS, Civil Surgeon, from Rae Bareli to Aligaih

MAJOR H W ILLIUS, IMS, Officiating Civil Surgeon, from Budaun to Rae Bareli

CIVIL ASSISTANT SURGEON LACHMI NARAYAN RAI, attached to sadr dispensary, Bijnor, to hold civil medical charge of the district, in addition to his own duties, vice Captain V B Nesfield, I M S

THE Civil Surgeon of Moradabad to hold visiting medical charge of the Bijnor district, vice Ciptum V B Nesfield, IMS

MAJOR G HUTCHESON, IMS, Civil Surgeon, Aligaih, has been granted privilege leave combined with study leave and furlough for a total period of twenty months, from the 1st April 1913, or subsequent date

MAJOR E L PERRY, IMS, chief malaria medical officer, Punjab, was granted 7 months' combined privilege and study leave, with effect from 5th March

CAPTAIN N S SIMPSON, I MS, whose services have been temporarily placed at the disposal of this Government by the Government of India, to be employed on plague duty in the Benares circle, vice Captun J S O'Neill, I MS

MILITARY ASSISTANT SURGEON G S JENNINGS, ISMD, whose services have been placed at the disposal of this Government, to be steward at the King George's Medical College, Lucknow.

WITH effect from the 27th December 1912, Licutenant Colonel W Vost, IMS, to be a Civil Surgeon of the 1st class, vice Lieutenant Colonel J J Pratt, IMS, retired

WITH effect from the 27th December 1912, Captain F W Sumner, I MS, Civil Surgeon, 2nd class, sub mo tem, whose services have been permanently placed at this Government's disposal by the Government of India, Home Depart ment, to be confirmed in that appointment, vice Lieutenant Colonel W Vost, I M S

AT a recent meeting of the Indian Research Fund, held at Delhi, it was decided among other matters, that Major E D W Grieg, I M s, will continue his cholera enquity for another year, Captain Mackie, I M s, will proceed with the enquity into Kala Azar, Captain Cunningham, I M s, will undertake the enquity into the prevalence of dysentery in Bergal jails and the Andamans, and Major Hutchinson, I M s, will take up the bacteriological analysis of water I MS, will take up the bacteriological analysis of water

IT is understood that in future the tenure of the posts of Civil Surgeon at Runchi and at Hazaiibagh will be for 3 yeus only

THE following notification by the Government of India in the Department of Education is republished

The services of Captain T C McCombie Young, MB, I MS, are placed permanently at the disposal of the Chief Commissioner of Assam with a view to his confirmation in the Sanitary Department, with effect from the 6th Novem ber 1909

CAPTAIN C F MARR, I MS, acts as medical storekeeper. Lahore, vice Major Gibbs, I MS

LIEUT J F H MORGAN, IMS, resigns the service His first commission was dated 28th January 1911 and he was given leave out of India on 10th September last

### Motice.

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Williams Minor Maladies, 3rd Ld Price 5s Bailliere, Tindall &

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London, Chapman & Hall, Ld
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U S Public Health Bulletins, common drinking cups or No 57
U S Public Health Bulletins, Medical Zoology No \$5
International Clinics 4 Vols, 1912
Cammidge Gly cosuria Ed Amold 1913 16s net
Humphris Electro therapeutics Longmans Green & Co
Fitzsimon's Snakebite & Freatment Longmans, Green & Co

## LETTERS, COMMUNICATIONS, &c , RECEIVED FROM .-

Lt-Qol Nott, IMS, Howrah Major Clayton Lane, IMS, Berham pur, Capt B Higham, IMS, Bombay, Major Delany IMS, Chapta, Major, Moses, IMS, Calcutta, Lt Col Barry, IMS, Rangoon, Lt Col Sutherland, IMS, Calcutta, Lt Col & Milne, Musscorle Col P Hehir, IMS, Rangoon, Capt Summer, IMS, Major F L Hammond, IMS, Mandalay, Lt Col Bruce Seton, IMS, Simila

### **G**riginal Articles.

REVIEW OF A YEARS' MEDICO-LEGAL WORK IN THE CALCUTTA MORGUE, 1912 (INCLUDING COMPARATIVE FIGURES FOR THE TRIENNIUM 1910 1912)

BY O ST JOHN MOSES, WD, DSL, FRCS FRS (F),
MAJOR, IMS.

Police Surgeon of Calculta, and Professor of Medical Jurisprudence, Medical College, Calculta

During the year 1912, 252 cases were sent up by the police for *post-mortem* examination as cases in which death appeared to occur under more or less suspicious circumstances

1910	1911	1912
283	356	252

(The average number per annum for the three years = 297 cases)

#### TABLE I

Distribution of the cases according to months and quarters of the year —

January February March	$ \begin{array}{c} 1910 \\ 23 \\ 13 \\ 25 \end{array} $	61	$   \begin{array}{c}     1911 \\     \begin{cases}     24 \\     23 \\     24   \end{array}   \right\} $	71	$ \begin{cases} 25 \\ 20 \\ 99 \end{cases} 67 = 1st \\ quarter $
April May June July	28 ) 24 } 18 }	70	$ \begin{cases} 29 \\ 39 \\ 37 \end{cases} $	105	$\begin{cases} 22 \\ 22 \\ 22 \\ 22 \end{cases} 66 = 2nd $ quanter
August September	24 } 20 }	63	$\left\{ \begin{array}{c} 33 \\ 29 \\ 30 \end{array} \right\}$	92	$\begin{cases} 19 \\ 19 \\ 22 \end{cases} 60 = 31d$ $\begin{cases} quante1 \end{cases}$
October November December	18 27 44	89	${ \left\{ \begin{matrix} 29 \\ 33 \\ 26 \end{matrix} \right\} }$	88	$\begin{cases} 22 \\ 20 \\ 17 \end{cases} = 59 = 4 th$ quarter
	283	283	356	356	252 252

TABLE II

Number of cases according to ser -

Males Females	1910 185 98	1911 272 84	1912 167 85
	293	356	250

The proportion of male to female cases was 188 m 1910 323 m 1911, and 196 m 1912

TABLL III

Number of cases according to race -

	mocortaing to	lace —	
Hindu Mahomedan Fulopean Eulasian Chinese Japanese Indian Christ an Doubtful of unknown	1910 196 45 13 7 2 1 1 18	1911 236 62 15 17 2 1 6	1912 180 35 15 9 2 0 0
	283	356	259

#### TABLL IV

Number of cases according to age-periods -

								1910	1911	1912
l	At o	n ab	out t	he time	e of t	n th	••	15	14	10
	Up 1	to ar	id inc	luding	1 yes	ai of	age .	3	6	Ō
1	A bo	ve I	and	up to	and	melu	ıdıng	•		_
				•			เอลาธ	7	11	8
l	,,	5		,		10	**	8	11	5
	,	10		,,		15	,,	9	17	10
	13	15		19		20	,,	29	42	23
	,,	20		"		25	,,	41	43	45
	**	25		,,		30	,,	34	41	28
	11	30		11		35	,,	31	45	33
	,,	35		,,		10	,,	27	37	16
	,,	40		"		45	,,	15	25	16
	11	45		,,		50	##	27	22	17
	**	50		,,		55	**	7	8	10
	"	55		**		60	1)	12	19	14
	11	60		,,		65	,,	6	4	4
	**	65		11		70	"	5	7	5
	"	70		,,		75	11	0	1	3
	"	75		,,		80	"	1	0	2
	"	80		99		85	,,	0	1	$rac{2}{2}$
	13	85		,		90	11	0	1	0
	"	90		1)		95	1)	0	0	0
^	٠, ,	95		",		100	31	0	1	1
C	of ur	11110	wn 8	ige (1	ej w	nere	the			
	age	1000	uu no	t be m	age o	ut on	ring			
	υ ι	16001	n bosi	tion oi	othe	r cau	se	6	0	0
							-	283	<b>3</b> 56	252

The above table speaks for itself The similarity between the figures in the columns for the three years is remarkable. A single glance at these shows it is especially between 15 and 50 years of age, that is roughly during the active period of adult life, that deaths of a violent nature are most hable to occur

#### TABLE V

Number of inquests held —

The City Coloner held an in-	1910	1911	. 1912	
	239	250	176	cases
ın	44	106	76	"
	283	356	252	

#### TABLE VI

The viscera preserved at the time of postmortem examination were disposed of as follows —

Sent to the Chemical Examiner to	1910	1911	1912
Destroyed after disposal of the case, under instructions from the Con-	175	133	93
missioner of Police	108	223	159
	283	356	252

#### TABLE VII

Result of the Chemical Examiner's analysis in the cases examined by him —

Poisons found (including cases in	1910,	1911	1912
which alcohol only as differing from other poisons found) in No poisons found in	83 92	73 60	55 38
	175	133	93

TABLE VIII

Analysis of the cases of poison found by the Chemical Examine —

	1910	1911	1912
Optum found in	47	40	31
Opium and alcohol	2	2	1
Opium and rerfectida	1	0	0
Opium and white aisenic	0	0	1
Opium and yellow aisenic	1	0	0
Opium and atropine	0	0	2
Alcohol only	12	10	2 4
Morphine	5	0	4
Morphine and alcohol	2 2 1 2	1	0
White arsenic	2	4*	3*
Arsenic and strychnine	1	0	0
Yellow usenic	2	2	0
Atropine	0	0	0 2 0 2 0 3 0 0 0 0
Aconite	0	2 1	0
Strychnine	1	1	2
Strychnine and acomite	1	0	0
Cocaine .	1	0	3
Cocaine and alcohol	0	1	0
Carbolic acid	2	3	0
Hydrocyanic (or prussic) acid	0	2	0
Cyanides (generally KCN)	2	3	1
Sulphuric acid ,	0	1	0
Yellow oleander	1	0	0
Red sulphide of mercury ("China			
Sindui" or Veimilion)	0	1	0
Phosphoi us	0	0	1
	83	73	55

I have already called attention in my reports for previous years to the extraordinary preponderance of opium cases over all other cases of poisoning taken together. This drug alone accounts for the following percentage of all cases in which poison was detected, not including those in which opium was discovered in combination with other poisons—

How far this substance has been employed in a suicidal manner will be brought out under the heading of Table XII, and very little comment will need to be added to the figures given there to emphasize the urgent necessity there is for placing a restriction on the sale of the drug and for the introduction of adequate measures to deal with the subject

As regards the singular case of poisoning with the red sulphide of mercury ('cinnabar') of which one case occurred in 1911, I would refer the reader to my report for that year (vide the Indian Medical Gazette, No 6, June 1911) It is likely that the occurrence will not be repeated for years and in this, as well as in the postmortem appearances which presented themselves, lies the great interest of the case

The reference made in the issue of the journal above cited, to the subject of cyanide poisoning is also perhaps not without interest. A single

\* NB-The figures for white arsenic for 1911 and 1912 include each two cases in which "rough on rats" was used

case was recorded in 1912 also of a suicidal nature. The subject was a student in the department of science and the poison (KCN) was obtained from the laboratory of a large college to which he had access as a student.

The instance of phosphorus poisoning, which I was able to record in 1912, was the first of its kind that occurred during the triennium. The post-mortem appearances were characterised by an extreme fatty degeneration of the tissues of the body, such as that described in text-books on toxicology. No phosphorescence was noticed however, and the odom of the stomach contents did not suggest the presence of the substance detected.

With reference to the subject of poisoning generally and the sending of viscera etc., for chemical analysis, I have observed that, in a variety of cases of poisoning, more especially in cases where opium was used it frequently happened that the poison was detected in the urine when it escaped detection or was not to be found in the visceia and stomach-contents In connection with this matter the practical point to which I wish to diaw attention is that in all cases of suspected poisoning, the urine as taken from the bladder should be sent for analysis in a separate bottle along with the viscera and Many a case of poisoning stomach-contents will pass by undetected if this is not done, and I therefore invariably make a practice of despatching the urine wherever this is available All surgeons holding post-mortem examinations should I think be reminded of the desirability of doing likewise whenever they have a reasonable suspicion of poison being the cause of death

#### TABLI IX

The total number of cases sent up for postmontem examination classified according to nature of death —

I	Natural causes—	1910	1911	1912
	Cases where no inquest was held	<b>3</b> 8	102	72
	Cases in which an inquest was held	53	43	22
		91	145	94
IT	Violent deaths (including deaths by poisoning)	192	211	158
		283	356	252

The percentage of deaths from natural causes to all cases in which a post-mortem examination was held, was as follows —

1910	1911	1912
32 1	4 07	373

In other words one-third to two-fifths of the cases that were brought up for post-mortem

examination and inquest, have, during the last three years, turned out to be cases of death from natural causes

TABLI X
The violent deaths classified —

		1910	1911	1912
1	Deaths by accident or mis			
	adventure	74	90	65
2	Suicidal cases	67	78	57
3	Homicidal cases	15	14	23
4	Doubtful (on the evidence			
	adduced) .	24	25	11
5	Due to rash and negligent acts (generally without			••
	cuminal intent)	7	4	2
6	Due to violence sustained			_
	during riots	5	0	0
		192	211	158
			-11	100

The point in this table which at once attracts attention is the decrease in the actual number of suicidal (violent) deaths along with a marked increase in the homicidal cases

The percentages to total number of violent deaths are as follows —

		1910	1911	1912
Of smerdal cases		348	<b>36</b> 9	36 Q
Of homicidal cases	-	78	66	14 5

The figures pertaining to homicide for 1912 are in keeping with the general increase in crime during that year. It is not the province of this report to discuss the reasons for such increase in crime, but it will be of interest to consider under a later heading the manner in which the deaths occurred which came under notice in the morgue as the result of acts of homicidal violence.

Analysis of the deaths due to natural causes-

In general, the deaths found to be due to natural causes during 1912, were the result of diseased conditions which were very similar to those enumerated for the previous two years. They need hardly be recounted here and for the list of natural causes which were at work I would refer the reader to the reports for 1910 and 1911.

Coull Mackenzie in his experience of nine years work mentions two cases of spontaneous ruptime of the spleen, and Gibbons leaves a record of three cases in seven years and nine months. One such case came to my notice in July 1912. The case was that of a Hindu male Chandia Bhusan Bose, aged 24 years with a spleen that weighed 27 ounces, the only instance of spontaneous rupture of the organ met with in the three years 1910 to 1912.

Another case of interest under the heading Natural causes 'was that of the cerebral apo-

plexy in a young Mahomedan male, aged 12 years, name unknown, which occurred also in July 1912. The boy was to all external appearances quite healthy, and there was an entire absence of all history of violence, but the cause of death was discovered to be a cerebral apoplexy surely a rare condition in a boy of such tender years. Eustace Smith, in his book on "Disease in Children," in the chapter on cerebral hæmorrhage, says "Rupture of vessels and effusion of blood is in the child a comparatively rare accident.

Still another case of interest was that of a Hindu male, by name Kanai Raut, aged 48 years, who died of cerebellar apoplexy, the only case of its kind met with in the last three years Each hemisphere of the cerebellum was ploughed up by a blood clot which is the case of the right hemisphere was about the size of a small orange.

#### TABLE XI

Analysis of the accidental violent deaths-

These may be arranged in the following manner according to the cause of death —

	g the combo of	асавц		
1	Poisons-	1910	191	1912
	(1) Opium	6	4	^
	(2) C O		4	2
	(3) Aconite	2	2	0
	(4) 37/6-4-	0	2	0
	(5) Yellow arsenic -	1	0	2
	(6) Carbolic acid	1	1	0
	(7) Sulphuric gold	1	Ó	1
	(5) Yellow arsenic - (6) Carbolic acid (7) Sulphuric acid (8) Phosphorus (9) Strychning	0	1	0
	(9) Strychnine	0	0	1
	(o) on joinine	1	0	0
		<del></del> -		<del></del> -
		12	10	6
2	Motor car accidents	11	5	0
3	Falls from a height	9	19	9
4	tramway accidents	8	6	10
5	Burns	8	7	4
6	Drowning	Ğ	ć	7 5
7	Carriage accidents	5	14	
8	Railway accidents	4	9	6
9	Falls Of Other forms of	•	U	5
	accidental violence oc-			
10	culring on boardship	3	3	3
10	rall on a person of a	,,	U	ð
	mergury object from a			
7.7	neight	1	6	4
11	Carriage and tramcar	=	J	4
12	collisions	l	0	0
13	Bullock cart accidents	7	ĩ	$\frac{3}{2}$
14	Bicy cle accidents	1	ò	ő
15	Suffocation	1	Õ	ö
10	Exposure after over in-			U
16	dulgence in alcohol	1	0	0
	Accidental wounds fol		-	U
17	lowed by septicemia.	1	2	1
••	Accidental wounds fol-		_	•
18	lowed by tetrnus	1	1	0
19	Snake bites	0	ì	Ö
20	Goring by a bull	0	ì	Ö
21	Gunshot accidents	0	i	0
22	Explosion of firework	0	ì	ì
	Machinery accidents	0	ò-	2
	_			
		9	0	65

TABLL XII

Analysis of the suicidal violent deaths-

	·		· crottolic	
		1910	1911	1912
1	Poisons-		1011	1012
	(1) Opium	34	33	ດອ
	(1) Op.u.n		612 8% of all	23 l (40 3 / of all
		suicides)	suicides )	suicides)
	(2) Opium and ai			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	cohol	U	0	1
	(3) Opium and	-	Ÿ	,
	white arsenic		0	1
	(4) Opium and		U	ı
	yellow arsenic		^	•
			0	0
	(5) Opium and		_	
	atropine	0	0	$^2$
	(6) Morphine	2	1	3
	(7) White arsenic		3	1
	(8) Yellow arsenic		ĭ	Ô
	(9) Strychnine	ò	i	2
	(10) Cocame	ő	Ó	2
	(11) Cyanides	2	4	
	(12) Carbolic acid	1	•	1
		•	4	0
	(13) Alcohol	1	0	0
		<del></del>		
		43	47	<b>3</b> 6
		(64 1/ of all	(60 2/ of all	(63 1/ of oll
2	TTonono	Buicides)	suloides,)	
Z	Hanging		19	13
	•	(28 3/ of all (	(21 3/ of all autoides)	(22 8/ of all
3	Drowning .	1	1	1
4	Gunshot	î	4	3
5	Cut throat	i	1	
		-		3
6	Falls from a neight	1	2	0
7	Burus	1	1	0
8	Stabbing	0	1	0
9	Strangulation	0	1	0
10	Falls on a railway			
	line	0	1	1
		67	78	57
		01	10	97

The percentage of suicidal deaths to the total number of violent deaths is as follows —

1910	1911	1912
34 8	36 9	36 0

No explanation suggests itself regarding the decrease in the number of suicides generally in Calcutta during 1912 Poisons taken as a whole remain of course the favourite means of effecting the crime, and although the total number of suicides by poisoning in 1912 is 11 less than in the preceding year, yet the percentage figures for poisons to total suicides in 1912 is higher by 2.9 In other words, although there were less suicides altogether in 1912 than in 1911 by 11, yet the proportion of suicidal cases due to the use of poisons was higher in 1912 than in 1911 by 29 Moreover, it would appear that opinin has established itself in the first place as a means of self-destruction, a place from which nothing seems able to remove it The percentage figures for opium suicides to total suicides for the years of the triennium are as follows -

1910	1911	1912
50 7	<b>42 3</b>	40 3

that is to say, nearly half the number of suicides in Calcutta may be attributed to the use, or

rather the abuse of opium. Hanging maintains the second place as before and accounts for the following percentage of suicides in relation to the total numbers.—

The other items taken together constitute an inconsiderable set of factors in the suicide table guishot and cut-throat cases being the only ones that are worthy of note

With reference to opium I can find nothing to add to the remarks I have already made in my reports on the work of previous years, but if repetition means emphasis I repeat, and that emphatically that every thing possible should be done to place such a convenient and apparently popular means of self-destruction out of reach of the class among whom such a cume as suicide is of most frequent occurrence Theoretically if the figures given above are a real index of the state of affans as exist do away with opium as a readily available means and the number of suicides will be halved In practice this would perhaps not work out so but if the suicides are reduced at all materially as the result of such a measure the measure would be amply justified

While I continue to lay such stress on opium on account of the large numbers it contributes to the suicidal deaths as met with in the morgue I do not mean to say that it is the only poisonous substance which is too easily procurable, or on the sale of which a restriction should be placed a matter of fact no poison should be so easily procurable by the ordinary person who might want it for unlawful purposes, and how many poisonous substances are there not which are sold in the "pashari's" shop and in the bazai geneially without restriction or license The question then resolves itself into the fiaming of a regular "Sale of Poisonous Act, 'whereby the State would do all that lies in its power to restrict the procuring of poisonous substances and to diminish the incidence of crime at any rate by such means

Cocaine is an instance of a poisonous alkaloid which, though it has contributed to only a few cases of death by suicide, is by no means unlikely to become a dangerous article for the purpose in the hands of the many That it is already accounting very appreciably for an increase in the incidence of crime generally no one can doubt who has paid any heed to the subject equally the case that the use of the drug leads to a marked degree of physical deterioration along with a demoralisation which is the precinsor No restriction therefore which can of cume be laid on the universal procurability of cocaine is to be considered as too stringent or will not be amply repaid by a marked benefit on society at large in all its aspects physical mental and moral,

One of the saddest aspects from which this subject of suicide as it comes, under my notice is to be viewed, is from that of the motives generally ascribed for the committing of the I noticed in my report for a previous year how in a large number of instances the most trivial causes accounted for the offence, and how the crime appeared to be intimately associated with a hypersensitive, neurotic element in the composition of the character of the race to which most of the suicides belonged This is a matter in which the administration cannot possibly help the people nearly as much as the people can help themselves Healthy physical exercise and intellectual pursuits for both sexes a liberal education for the young female of the country and her early emancipation and in the case of the sisterhood of the demi-monde a raising of then social and moral status, are a few of the measures that would contribute to making a "mens sana in corpore sano" and life more worth living with its numerous possibilities for doing good

#### TIBLE XIII

#### I Opium suicides—

(a) According to sex-

1010

(b) According to age-periods—

		19	TO TE	911	19	12
biom 10—15 y 15—20 20—25 25—30 30—35 35—40 40—45 50—55 55—60	Cus of age	7 } 1 20+	9   6   6   6   6   6   6   6   6   6	0 0 1 1 0 1 5 5 5 1 Females	0 0 0 0 1 2 5 5 1 0 Males	0 1 0 1 1 0 8 8 8 1 Females
		35	_	_	12+	

II Suicides by hanging—

(a) According to sex—

1910
1911
1912

Vales
10
Females
9
$$\begin{cases}
P_{10st1} \\ tute, 3 \\ Others 6
\end{cases}
9
 $\begin{cases}
P_{10st1} \\ tute 1 \\ Others 3
\end{cases}$ 
19
19
13$$

#### (b) According to age-periods-1911. 1912 1910. Females 5 c l Females From 5-10 years of age 15--20 20 - 25" 31 25 - 30,, 30-35 ,, 35-40 ,, ,, 40 - 45,, 45 - 5050 - 55" 55 - 6080-85 10 + 919

The above tables make it manifest that suicides effected by the two most favourite means are invariably more common among males than among females and that by far the majority of cases occur amongst those in the period of active adult life

#### TABLE XIV

The cases of suicidal violent deaths classified according to race—

1	910	1911	1912
Hındu	61	66	46
Mahome			
dan	2	5	2
Ептореап	2 {Gunshot Fall	1 } 3 { Gans K C.	liot 1   5   Gunshot 2   Strych   nine 1
Entastin	I	3{Guns Opiui	•
Jew	1	0	O
Japanese	0	1 Stabb	ong 0
	• 0	0	1 Hanging
	67	78	57

There is, of course, no comparison between the number of Hindu suicides and that of all other races taken together, so far as the absolute figures are concerned. It would, however, be of considerable interest to compare the figures calculated in proportion to the population of each of the above races in Calcutta.

#### TABLE XV

Analysis of the homicidal violent deaths according to mode of occurrence—

1 2 3 4 5 6 7 8 9	Stabbing Kicks, blows, etc Strangulation Throttling "Lathr" blows Gunshot Cut throat Suffocation Decapitation Unknown	•	3 3 2 2 1 0 0 0	1911 7 4 1 0 1 0 0 0 0	1912 8 2 1 0 2 5 2 1 1	
			15	14	93	

The only noticeable point about this table is that stabbing remains the favourite method of committing homicide

The percentage of homiculal deaths to the total number of violent deaths is as follows --

1910	1911	1912
78	6.6	14 5

What the reasons are for the increase in crime generally and part passu with it, for the increase in homicides in Calcutta during the year 1912 is, as I have said before, a matter which is outside the province of this report Still the fact remains not only that the increase is there but that it is very marked and the above table shows the methods that were adopted during the past three years for the perpetration of criminal acts of a homicidal nature As regards the motives for the latter I have nothing fresh to add to what I have already said in my report for a previous year, namely, that they are just the usual ones which impel the uncontrolled mind to acts of violence

#### TABLE XVI

A certain number of cases of violent deaths are classified as "doubtful" in Table X, and these represent cases in which the Coroner's jury found it impossible, on the evidence adduced, to arrive at a definite conclusion as to whether the deaths were accidental, suicidal or homicidal in their nature, and so left their verdict 'open' on this point.

001110	1910	1911	1912
1. Poisons-			
(1) Opium	8	8	5
(2) White aisenic	0	1	0
(3) Mercurial poisoning	0	I (1	ed 0
(-)		sulp	hide)
(4) Cocame	0	1	1
(5) Irritant (nature un			
known)	1	1	0
(6) Strychnine	1	0	0
(7) Marahana	Ţ	0	0
(8) Yellow oleander	1	0	0
(9) Chloroform	0	1	0
(10) Atropine	0	0	2
(11) Carbolic acid	0	0	1
•			
	12	13	9
2 Drowning	4	3	0
2 Drowning 3 Strangulation	0	1	0
4 Hanging	0	1	0
4 Hanging 5 Gunshot c. 6 Tram car 7 Motor car 8 Carriage	0	1	0
6 Tiani cai	0 2 2 0	1	0
7 Motor car	2	0	0 0 1
8 Carriage	2	υ	0
9 Cut throat	0	0	1
10 Induction of abortion	O	1	U
11 Violence of a mechanical nature (other than the			
above)	4	4	0
·	ó	Ū	1
12 Unknown			
	24	25	11

#### PARIT XVII

The following is the analysis of the casts which were returned by the Coroner and his jury as cases of death due in some manner to rashness and negligence on the part of others (without criminal intent)—

•	1910	1911	1912
Runaway horse	1	O	0
Carriage	3	1	1
Carriage & tram-car collision	1	0	0
Motor car	2	1	U
Bullock cart	0	1	0
Railway	0	1	Û
Throwing of a heavy object	0	0	1
	7	4	2

The following are a few discoveries of interest from the point of view of pathology and morbid anatomy, made in the cases that came on the post-mortem table—

I Perforation and rupture of the internal organs due to violence alone—

,	1910	1911	1912
Lungs	0	0	1
Liver	4	12	$\boldsymbol{e}$
Spleen	1	3	1
Livel and spleen	1	5	0
Stomach	0	4	0
Intestines	0	5	3
Kidneys	0	1	0
Bladdei	0	1	2
Uterus	0	1	0
O ret no			

II Perforation and rupture of heart and large vessels due to disease or to violence supervening on a diseased condition of the parts—

6	1910	1911	1912
Pencardium Right auricle Left auricle Right ventricle Left ventricle Heart in all its cavities Right pulmonary vein	1910 0 1 0 0 0	1911 2 2 2 0 1 0 0	1912 2 0 0 1 4 0
Thoracic acita, 1st part Thoracic acita, 2nd part Abdominal acita	0 1	1 2	0

## III Disease of heart and large vessels-

(a) Atherom	a —		
(11) 220		1911	1912
Aortic valve	10	34	56
Thoracic anita	10	34	61 0
Pulmonary artery	U	1	-

(b) Endocarditis of the mitral valve-

1910	1911	1912
0	10	1

(c) Mitral valve Aortic valve Thoracic north 1919 '11 '12 1910 '11 '12 1910 '11 12

Stenosis 0 1 1 0 3 4
Vegetations 4 2 0
Ulceration

Anemysm

### IV Abnormalities-

(a) In the way of disease, etc —

(it) In the way of mocast,								Brain										
	1910	Laver 1911	1912	ſ	5pleen 1911		(	1911.		ì	)var108 1911		ł	Itoru! 1911 ———		j		
Abscess	1	0	0	1	0	0	1	1	0 2							1		
Stone Curhosis	i   (ga   10	7 11 bla 45	1 dder) 38				3	4	5									
Waxy degeneration	1	2	0				0	0	1									
Futty degeneration Infuct	1 -			1 1	2	0	0	3	2	4	12	7						
Cyst Granula <b>r</b> kidney	1	1	0	,	U	1	3	2	2		•	•	0	3	4	1	0	0
Tumour				' 0	0	1				0	0	1	10					

## (b) In regard to weight—

The adult liver of least weight was-

1910	1911	1912
		151 02
22 oz	22 07	15 <b>)</b> oz

The adult liver of greatest weight was—

1910

1911

1912

107 oz

The adult spleen of least weight was — 1910 1911 1912 — 1 0/

The liver in one case was found to consist of a single lobe, namely, the right lobe only. So far as the spleen is concerned, although the average weight of this organ in a mixed series of cases almost constantly works out to something like 7 or, yet I hardly think this figure is to be regarded as representing the average weight of the healthy adult spleen in the Indian. For, in several mixed series I have noticed that the average is run up by a few cases in which the spleen is markedly enlarged, by which I mean that if these cases of manifestly morbid enlargement are not taken into account the average figure for the weight of the spleen in the healthy adult Indian would be below the 7 oz

With reference to the question of cholelithiasis to which I diew attention in my previous reports, I regret that no explanation has as yet been suggeted by any one for the much less frequent occurrence of the condition in Bengal at any rate as compared with Europe and America

During 1912 only one case of this condition was discovered in 252 bodies examined post-morten and this happened to be the case of a European female, aged 51 years who died of poisoning with opium self-administered. In connection with this subject of the immunity which the people of Bengal enjoy from gall-stones I again put the question, has it to do with climatic conditions, dietary the non-use of alcohol or with a combination of these? May not any hint regarding this prove useful in the matter of prevention of the malady in other, or even in treatment?

Even renal calcult are not very common only 4 cases having occurred in the three years 1910 to 1912 during which period no less than 891 cases were examined. This gives a percentage of 0.44 only and still more marvellous to relate, in not a single instance was a calculus found in the bladder in 891 cases examined in the three years!

It is as instructive as it is interesting to consider awhile what I may term the medicolegal history of the first city in the East as studied in the morgue, and to make a few compansons between what held in years gone by and what holds at the present day in connection with this subject. It is a thousand pities that until three years ago there has not been a system in vogue of keeping a record of each year's work done in the Calcutta morgue, for records of this kind extending over a long series of years would have been invaluable and would have afforded a mine of wealth in the study of such a subject The only material available is contained in the writings left by Chevers, Coull Mackenzie and Gibbons,\* and their works may be taken as an index of the conditions that

<sup>[\*</sup> Also see Medico Legal Records by Kenneth Macleod and by Surgn General R Huttey -ED, I M G]

prevailed at different periods in the earlier part of the history which it is desired here to recount Mackenzie has left a record of observations that extended over a period of nine years, and his figures bring out many points of great interest just as his experimental and research work established many points of the greatest importance in state Thus for instance, very little change has taken place since Mackenzie's day as to the relative proportion of let us say suicidal hangings to suicidal drownings His figures show a proportion of about 144 of the former to 1 of the latter per annum, and mine for the past three years, a proportion of 17 to 1 per annum the actual number of suicidal drownings remaining much the same, that is about one a year however accidental drownings are considered, then it is at once seen that in Mackenzie's time -they averaged about 35 to 36 a year, whereas at the present day only about 5 to 6 this is to be accounted for by the facilities for this form of accident having become less with the improvements that have taken place in Calcutta in the way of filling up wells, ponds, etc this manner a careful study of the figures of former days and a comparison with those of today, show at once that parr passu with the advances made in this city and the change of conditions in many respects, remarkable effects have been produced on what I have already termed the medico-legal history of the city as it may be studied in the morgue Then of course, there must be taken into account the very important factors of actual increase in the population of the city, the increase in the density of this population, and the usual concomitants of increase in poverty and distress These and such like factors which spell progress to the city are surely to be held accountable for the fact that while in Mackenzies time which after all was not so very long ago the total number of violent deaths from all causes averaged 62 or so a year they work out during the last triennium to no less than 187 per annum, an increase of 300 per cent

Similarly Gibbons's writings afford many figures from which may be deduced facts of the greatest interest. Thus during eight years ending May 1901 covered by his observations, the number of poisoning cases by means of opium alone averaged to about 33 a year, and in the three years ending December 1912 the cases of the same kind came up to about 39 per annum showing that opium was, as it still remains an exceedingly dangerous substance to be within the reach of the careless or of those who are inclined to homicide or more especially to suicide, and that the casualties due to its use are even greater to-day than they were a decade ago

Assence poisoning, on the other hand has not mereased for during the period 1893 to 1901

cases of this averaged to 6.1 per annum whereas during the three years 1910-12 the figures came to 53 a year. This may be and probably is to some extent due to the Poisons Act 1 of 1904, which is intended to provide for the regulation of the possession and sale of all poisons in certain local areas and the importation possession and sale of white aisenic generally throughout the whole of British India By further notifications made in exercise of the power conferred by a certain section (2) of the above Act the local Government in Bengal in 1908 defined the term "poisons as used in the Act to mean aconite, nux vomica, perchloride of mercury cyanide of potassium and dhatuia stramonium and in 1909 they further included under the term 'arsenic' several of the better known arsenical compounds, such as orpiment realgar Scheele green Schwemfurth s green etc

There is no mention in Gibbons's writings of a single case of cocaine poisoning\* having occurred up to the year 1901 The first fatal case was recorded by me in 1910 Another occurred in 1911 (cocame and alcohol) and subsequently three others in 1912, all of which are in my I would like to draw attention at this point to an excellent little article on "Cocaine poisoning" by Di-Chumlal Bose (vide the B M JIn this article the writer brings Jany 4, 1913) out not only that fatal cases of cocaine poisoning are of the most recent occurrence, but also the fact that cocamomania so graphically described as to its symptoms and effects, by Taylor, Brundage. Barkeley and others, is taking a hold of the people of this city in a most terrible manner and as I have suggested before, perhaps being to a large extent accountable for the increase in crime If civilization and proin Calcutta generally gress are responsible for a poison of such a nature falling into the bands of the people, when they intended it to be only a very useful and beneficial medicine in the hands of the physician and surgeon, then the same civilization should by efficient legislation make itself equally responsible for restraining its use as the former and ensuring its employment as the latter only

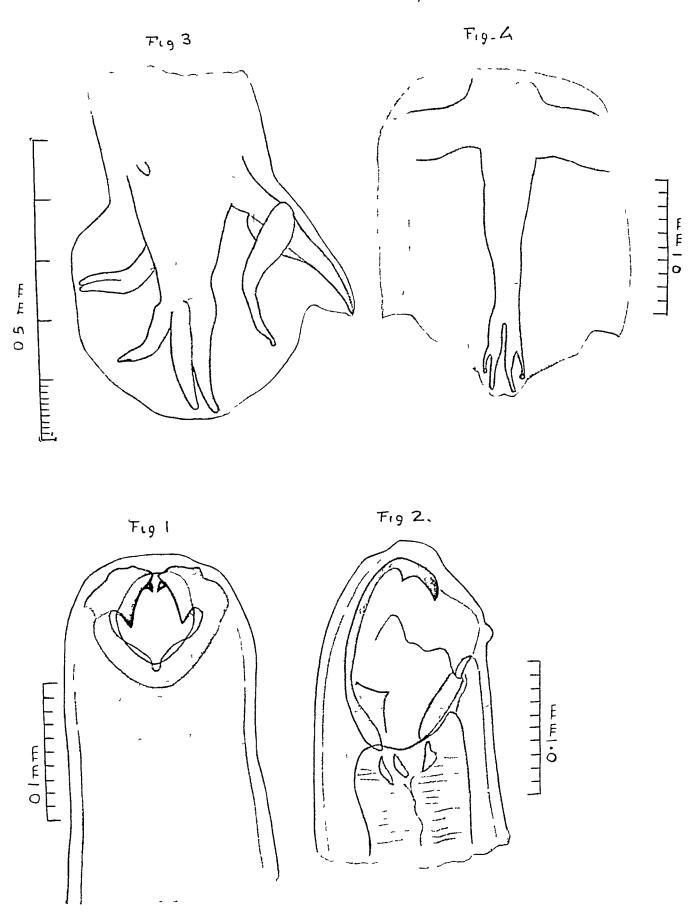
There is one other set of poisons which I wish to notice with reference to this part of my subject, and that is prussic acid and the cyanides Norman Chevers in his work on medical jurisprudence says that up to 1856 no case of prussic acid poisoning had been reported in India Since then several cases have occurred, and Chevers mentions four as having been recorded within two years as the result of prussic acid, and three others due to the use of potassium cyanide

<sup>\*</sup> Cocame eating commenced in Bengal about 1900. It was for sale in bazars by pan sellers in that year in Bhagalpore and a year later the present Editor, I. M. G., wrote a paper on its prevalence amongst Juvenile offenders in Calcutta before the Asiatic Society of Bengal—ED., I. M. G.

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## AGCHYLOSTOMA CEYLANICUM, A NEW HUMAN PARASITE

By Major CLAYTON LANE, 1 Ms



# AGCHYLOSTOMA CEYLANICUM, A NEW HUMAN PARASITE

BY CLAYTON LANE,

MAJOR, IM8

In the year 1911 Looss (1) published the description of a new ankylostome which he had found in material from the civet cat (Viver ricula malaccensis) sent him by Di Willey of Colombo He named it Agchylostoma ceylanicum ing of this species, of A malayanum and of A "The last three plumpentatum Looss says species mentioned are so far only known as in-Since, however, it is not festing wild animals impossible but even fairly probable that, in the countries where they are indigenous, they also inhabit tame or tamed Canida and Felida, and so may come within the range of the experimenter, I have added them here " The shrewdness of this conjecture has been amply demonstrated by my find of A ceylanicum as a constant parasite in the dog and cat in Berhampore, Bengal, (2) and also in material very kindly sent me by M1 T Southwell, Deputy Director of Fisheries for Bengal, from an African Iron which was born and which died in the Calcutta Zoological Gaidens It is probably widely present in felines and canines in India

Prisoners admitted into the jail at Berhampore, are the subjects of a routine microscopic examination of their stools, and those in which ova of the well-known ankylostome type are found are treated with Manson's Mixture, the stools are washed and sedimented, and the worms which appear are picked out

In a batch of 30 prisoners received from the Mymensing jail and individually examined and treated in this manner, it was found that in three of them there were some ankylostomes present which were shorter and thinner than are adult specimens of A duodenale. On subjecting them to microscopic examination it was evident that they were specimens of A ceylanicum

The distinguishing features of this worm are the following. It is, as stated, smaller than A duodenale

Looss gives the size of specimens from the civet cat as averaging 5 mm for males and 7 mm for females, in the ordinary cat here the corresponding figures are 6 8 mm and 7 0 mm, in the dog 7 2 mm and 9 8 mm, while in the case of those parasitic in man and passed after eucalyptus, chloroform and castor oil they are 8 5 mm and 10 5 mm for males and females respectively When fresh the appearance is currous owing to the fact that the parts at the head end are, with the exception of the œsophagus, transparent,

while the rest of the worm is opaque from one margin to the other, the impression produced is much like that of a minute dissecting needle A faint suggestion mounted in a minute handle of the same condition remains even after the worms have been killed in 70 per cent. spirit, and would probably be enough, with a little practice, to allow of the identification of the worm with The mouth has the usual characthe naked eye chief specific The tenstics of the genus There are two pairs of characters are these vential maiginal teeth (Figs 1 and 2), when the mouth is looked into from without the one pair is deep and cephalad, and the other superficial The points of both pans are directed and caudad The bursa of the male has marked caudad clefts dividing the doisal from the lateral lobes (Fig 3), the dorsal ray bifurcates, and each branch again bifuicates, while the edge of the dorsal lobe of the bursa has a single convex curve on each side of the mid-line the two curves producing an outline like that of a weak figure The lateral lobe is rather long and 3 (Fig 4) 10unded

It is not possible to say to what extent the parasite infests man in Bengal Having hitherto taken for granted that there were only two human ankylostomes in India which could be easily distinguished by the naked eye (the two are of course A duodenale and Necator americanus), and having disposed of the worms I had collected up to a recent date, I am at present unable to offer any facts as to the frequency with which A ceylanicum occurs as a human parasite Looking back on the ankylostomes I have collected I am under the impression that I have previously found it occasionally in small numbers

It is scarcely necessary to point out that the discovery of this worm as a human parasite introduces an entirely new factor into the question of the prevention of human ankylostomiasis Necator americanus has not been found up to the present time except in man and the gorilla, Agchylostoma duodenale has never been found except in man Then practical prophylaxis is concerned with man alone Agchylostomaceylanıcum is a constant parasite of healthy domestic animals in this part of India at least Should the time ever come when ankylostome campaign becomes necessary or practical in India, and should it turn out that ceylanıcum is at all a serious factor in human ankylostomiasis, then the problem of prevention will entail, not merely the freeing of man from his parasites, a difficult enough matter seeing that, in the immense majority of cases of infection, this is, in India, so slight that it produces no symptoms, but also the similar treatment of healthy dogs and cats, and probably jackals, and other cannes and felines words the task would be impossible It does not

<sup>(1)</sup> Records of the School of Medicine, Cano, Vol IV
(2) Tricho strongylus colubriformis, a human parasite—
Indian Medical Gazette, April, 1913

however appear at all probable that Aqchylostoma ccylanicum is at present a numerously occurring human parasite, and, judging by the well-known history of the genus, it is not easy to see how any increased domesticity of the dog and cat (a change in habit which appears likely to take place as Indians gradually adopt European customs) will produce through their means a greater measure of human infection than that which is at present in existence

#### AGCHYLOSTOMA CEYLANICUM

DESCRIPTION OF PLATE

Otal opening from dorsum Optical section of the head from the side Tail of the male from the side Dorsal ray and dorsal lobe from dorsum Fig 1 Fig 2 Fig 3 Fig 4

#### A MILD EPIDEMIC OF JAUNDICE

BY G D FRANKLIN, BA, MB, BC (Cantab), MRCP (London), CAPTAIN, I M S ,

Agency Surgeon in Gilgit

During the late autumn and early winter of last year (1912), there was a mild outbreak of jaundice among the men of the Kashmir Imperial Service Troops stationed at Gilgit the same time a considerable number of cases of the same disease were observed among the civil population, but it was not feasible to keep the civil cases in hospital, and consequently the following statistics and remarks apply only to The first case was admitted the military element on 2nd September 1912 and the last on 27th There were a total of 26 cases. December 1912 giving a percentage of just over 7 of the total strength of the gairson at Gilgit during the period in which the outbreak occurred

The cases were universally mild and without

montality

A perusal of the attached tabular statement shows that all the cases exhibited the classical signs of obstructive jaundice, namely, yellow colouration of the skin and conjunctiva, bile coloured stools in the urine and clay weakness and slowness of the pulse is commented upon in the notes and there was the usual In 36 per cent of the cases an enlargement of the liver was detected, but in only one case an increase in the size of the spleen and in this instance not attributable to the attack of jaundice but to old malarial in-One case only suffered from fever during admission, but there was a history of slight fever before admission in 80 per cent of the cases

The blood was examined in every case and malarial parasites detected in eight of them (32

A total white count was made in eleven cases and a differential count in twelve cases cases so examined the total number of leucocytes

were above normal, and there was an increase in the total lymphocytes at the expense of the polymorphonuclear leucocytes An examination of the fæces under a low power in fourteen of the cases, gave negative results

The individual cases require no comment except case number 6, who was originally admitted for dysentery and who developed jaundice a few days after admission His motions contained blood during the early part of his attack

This small epidemic was similar to numerous small outbreaks of jaundice, which have been reported at home during the past Whether the name Weil's disease should be given to these small outbreaks of jaundice is a point which I am unable to determine, but if that name be taken to include any outbreak of jaundice in epidemic form, then the outbreak here reported must be regarded as a mild example of that disease

There is, in these cases, presumably a cholangitis of the bile ducts throughout the liver which prevents the normal passage of bile into the I am now unable to verify the referintestine ence in one of the periodicals, in which the condition of the parotid gland in mumps and the condition of the liver in these cases was presumed to be similar, but the simile appears to me to be not mapt and to be capable of expansion in so much as one is justified in supposing that the infection takes place in the former case along Stenson's duct and in the latter along the bile duct

The troops stationed at Gilgit are accommodated in the old fort and in lines, both situated on A proposal for a pipe the bank of the river supply of dunking-water from a spring a mile up the hill is at present before the Kashmir Durbar, in the meantime the men are supposed to take their diinking-water from the liver This entails a climb down and up a steep bank and adjacent to the cook-houses is a small nrigation channel which is fed from the main Gilgit This main irrigation channel and its branches are liable to the grossest infection, consequently it can be inferred that the infective agent in the jaundice cases was conveyed in this water

The close proximity of this irrigation branch to the cook-houses makes it extremely probable that its water was utilized, in some instances, for dunking purposes I say "in some instances" advisedly, as otherwise it is difficult to understand why the outbreak was not more general

During the period that the cases occurred the men were on no special dietary, nor was the As to the general health in any way abnormal nature of the infective agent I have no practical evidence and can only adduce the theory that it is a specific one with a selective action on the bile duct and its branches

I have to thank Sub-Assistant Surgeon Amir Chand for his careful notes on the cases.

Tabular Statement of Cases

UNI	E, 1913.J								
T range and the state of the st	Blood	Malarial parasite	Nothing	Ditto	Ditto	Ditto	Ditto	Ditto	Ditto
	Fover	History of feven before admis snon, none subsequently	Fever before and mission followed by jumplice, no fever during admission	History of fever but none during admission	History of feven before the onset of jaundice but n o n e ter	History of feven before admis sion, none sub sequently	No fever duning rdmission, but a previous his tory of fever	History of fever	History of feven
	Pulse and Tongue	Pulse — Werk rnd slow Tongue — Dry rnd coated with white	Pulse —Very weak Tongue —Dry and furred	Pulse —Slow and feeble Tongue —Dry and corted with white	Pulse —Weak Tongue — Coated with white fui	Pulse —Weak Tongue —Dry and coated with white fur	Pulse —Weak Tongue —Dry und fur red	Pulse —Weak Tongue —Dry and furied	Pulse —Weak and slow Tongue — Furned and dry
ent of cases	Laver and Spleon	Liver —Thie efingers' bradth below costal margin Spleen —Not en larged	Liver —Slightly below costal mugin Spleen —No en langement	No enlargement of either liver or spleen	Live; —One tinger's breadth below costal margin Spleen—Noten larged	Livei—Two fingers' breadth below costril margin Spleen—Not en larged	Liver and spleen not enlarged	Ditto	fin ver —One finger's breadth b elow the costal margin Spleen —Not en larged
Tabutar Statement	Bowels	Constiputed Clay coloured Hard No finge of bile	Constipated Offensive Clay colouied Haid	Constituted Offensive Clay coloured	Constipated, Offensive Dry Clay coloured	Constituted Offensive Clay coloured	Tinged with blood Soft Thiee times daily No noimal	Constipated Clay colonied Offensive	Constrpated Offensive Clay colonied
$I$ $\alpha \rho I$	Urine	Sp grav 1026 Acid Bile pigment	Sp glav 1025 Acid Bile pigment	Sp grav 1020 Acid Bile	Sp grav 1024 Acid Bile pigment	Sp grav 1020. Acid Bile pigment	Sp grav 1030 Acid Bile present	Sp grav 1022 Acid Bile present	Sp grav 1028 Acid Bile pigment
	Colour	Skin and con junctiva pale yellow	Eyes and skin both deeply yellow colomed	Skın and eyes ırc pale yellow	Skin and conjunctive 116	Skin and eyes are pale yellow	Skin and con junctiva pale yellow coloui	Skin and con junctiva pale yellow colour	Skin and eyes yellow
	Date of Discharge	17 VI 69	17 VI 69	8 VI 69	5 VI 69	8 VI 69	VI 69 IV	VI 69	N 69 IA
	Date of Admission	1s V 69	26 V 69	69 A 69	28 V 69	28 V 69	1 V 69 24	5 VI 69 18	VI 69 24
	Ago	42	16	27	40	6	S 31		12
	Regi mental Num bor	303	1070	622	194	1063	52	1256 20	1982 20
	Sernal Num bor	1	C1	80	4	10	9	7 1.	8 -

(Contd)
c Cases —
Statement of
Tabula

20	· · · · · · · · · · · · · · · · · · ·		THE	INDIA	MEDICAL (	GAZETTE		[];	N1, 1913
	B'ood	Malairal parasite  Differential count —Poly  Lange Small  Transitional  Form	Mala ial parasite.	Ditto	Nothing  Total white count —11562  Differential white count —Poly 46 %  Large Small  Eosin	Nothing Total white count $-16270$ Differential white count $-$ Poly $45^{-9}$ , Large Large Small $\begin{cases} 50.0 & 0.0 \\ 50.0 & 0.0 \end{cases}$ Lymph $\begin{cases} 50.0 & 0.0 \\ 50.0 & 0.0 \\ 50.0 & 0.0 \end{cases}$ Francist $\begin{cases} 50.0 & 0.0 \\ 50.0 & 0.0 \\ 50.0 & 0.0 \end{cases}$	Nothing Total white count $-12500$ Differential white count $-Poly \ 517\%$ Large Small Trunsit Foun	Yothing Total white count —14000 Differential white count —Poly 53 % Large Small Loun Loun	Nothing Total white count —106.25
	kover	No feren	History of feven, but no 118e of temperature during admis	Fever uring the hist three days of admission	No feven	History-of fever before the onset of jaundice	The patient had fever before admission but none subsequently	History of feven hefore admis sion but no fever it pie sent	History of fever before admiration but no fever now
-	Pulse und Tongue	Pulse —Weak Tongue —Fur red and moist	Pulse —Weak Tongue —Dry and fulled	Pulse -Weak Tongue - Funed and	Pulse —Very feeble Tongue —Dry and white furred	Pulse —Weak Tongue — Dry and furred	Pulse -Weak And very slow Tongue - Flabby, dry and furred	Pulse -Slow and feeble Tongue -Dry and furied	PulseWerk Tongue Moist and furred
namo) eseno	Liver and Spleen	Liver and spleen not enlarged	Livei —Slightly enlarged No enlargement of spleen	Liver —Slightly enlarged Spleen —Not en larged	finger's breadth below the costal mrugin Spleen —Two fingers' bieadth below the costal mrugin	Livei and spleen iie not en liiged	Livei and spleen not enlarged	Neithei livei noi spleen are cii- laiged	Liver—One hinger a breadth helow the costal margin No enlargement of spleen
Determine of Oct	Bowels	Constipated Offensive Clay coloured	Constrpated Clay coloured Offensive Fraces —No thing micros	Constipated Clay coloured Offensive	Constipated Clay coloured Very offensive Frees —No thing	Constituted Clay coloured Offensive Froes —No thing	Constiputed Offensive Clay coloured Frees—No	Constipated Offensive Clay coloured F. c. c.s. —No	Constipated Clay coloured Offensive F.ces -No
Laurer Derece	Urne	Sp grv 1025 Acid Bile pigment	Sp grav 1024 Acid Bile present	Sp grav 1020 Acid Bile present	Sp grav 1020 Acid Bile pigment present	Sp grav 1022 Acid Bile pigment	Sp grav 1020 Acid Bile pigment Albumin	Sp grav 1029 Acid Bile present	Sp grav 1024 Acid Bile pigment
nr	Colour	Conjunctiva and skin are pule yellow	The eyes and the whole body as e pale yellow	The eyes and the skin are pale yellow	The eyes and the whole body are pale yellow	The eyes and the skin ue pale yellow	The eyes and skin are deeply yellow colanted	Eyes and skin pale yellow coloui	Ditto
	Date of Dischargo	69 IA #5	13 VIII 69	11 VIII 69	25 VIII 69	20 VIII 69	25 VIII 69	39   24 VIII 69	69 20 VIII 69
!	Date of Admission	16 VI 69	20 VII 69	28 VII 69	2 VIII 69	3 VIII 69	4 VIII 69	4 VIII 69	8 6 VIII 69
	Age	ର	19	33	35	<u>et</u>		 S1	<u>୍</u>
	Regr mental Num	1266	1131	616	1107	654	1290	. 1023 	6 1059
	Serial Num ber	6	10	11	13	£	<b>*</b> E	 	91

Junf, 1	1913 ]				AUNDICE	0.0.0.0	0 0 0 0	35%, 35%,	20,00
Tothing	$\begin{array}{c} \text{Mularial parasite} \\ \text{Total white count} & -16500 \\ \text{Diffee entral white count} & -Poly & 15.7\% \\ \text{Large} \\ \text{Small} \\ \text{Transitional} \end{array} \right\} \text{Lymph} \left. \begin{cases} 12.7\% \\ 30.\% \\ 6\% \\ 5.\% \end{cases} \right.$	Total white count $-18750$ Differential white count $-\text{Poly } 39 \ 7^{\circ} p$ Large $17 \ T^{\circ} p$ Small $17 \ T^{\circ} p$ Transit	Nothing	Nothing Nothing Total white count $-18125$ Differential white count $-\text{Poly }55$ %. Small Small Transit $28.5\%$	Total white count —16000  Differential white count —Poly $56 \ 4^{\circ}/_{\odot}$ Large Small Transit Bosin	88.4	Malarial parasite  Total white count $-17210$ Differential white count $-Poly 46$ %  Large Small  Transit  Foun	Nothing Total white count —10000 Differential white count —Poly 5 Differential white count —Poly 5 Bangle Small Essin	Nothing  Total white count —S750  Differential white count —Poly 46 5%  Large Small  Eosin
The patient had Nothing fever before the attrick of Jaun dice	Bistory of feven before admis continuous but no fever at present		Fever before admission but not with the jaundice	No feven	Ditto	Ditto	History of fever	History of fever but no rise of temperature during admission	No fever
Pulse —Weak Tongue — Moist and fured	Weak Dry white	Pulse -Weak Tongue -Dry and furred	Slow ak -Dry white	Infleat Pulse — Weak Tongue — Dry and white	Pulse —Weak Tongue —Dry and furred	Pulse —Very weak. Tongue —Dry and coated with white	PulseVery slow and feeble TongueDry, flabby and furred	Pulse —Weak Tongue – Flybby and coated with	Pulse —Weak and slow Tongue — Conted with white fur
No enlargement of liver and spleen	Ditto	Dutto	Liver and spleen are not en larged	No enlugement of liver und spleen	Ditto	Ditto	Ditto	Ditto	Ditto
Constipated Clay coloured Offensive	Constituted Clay coloured Offensive Fuces—No thing	Constiputed Very offensive Clay coloured F x c e s —No thing	Constipated Clay colouied Offensive Froes No	thing Constiprted Clay coloured Offensive Faces—No thing	Constipated Clay coloui ed Offensive Fix c es —No- thing	Constipated Clay colouied Offensive Fraces—No thing	Constipated Clay coloured Offensive Fraces—No	Constipated Clay colouied Offensive Frces — No- thing	Constipated Olry coloured Offensive Froces —No
1022 ent	Sp grav 1024 Acid Bile pigment	Sp grav 1024 Acid Bile pigment Trace of	Sp grav 1020 Acid Bile present	Sp grav 1024 Acid Bile pigment	Sp grav 1022 Acid Bile pigment	Sp grav 1022 Acid Bile pigment	Sp grav 1020 Acid Bile pigment	Sp grav 1020 Acid Trace of bile, Trace of	Sp grav 1020 Acid Bile pigment Trace of albumin
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# SPIRILLAR FEVER IN THE DARJEELING DISTRICT, 1912.

BY A M JUKES, MD, CAPTAIN, IMS,

Deputy Sanitary Commissioner, Bengal

DURING the months of September and October 1912, I had the opportunity of commencing the investigation of some cases of fever caused by a spinochete, which I believe to be hitherto undescribed. The materials are very scanty, but sufficient, I think, to enable one to draw some conclusions

In the summer of 1912 there was a good deal of illness in the Daijeeling District, a large proportion of which was described as dengue, influenza, feverish cold, etc, at the same time the death-rate was 41 per mille, and there was, I believe, some difficulty in accounting for this high figure Whether or not the fever described in this paper is responsible for it, I am not prepared to say Early in September making a few enquires about dengue in the town of Daneeling, and was talking to Di Baldwin Seal who had recently been all with at course of conversation he told me that in one of the tea estates in the neighbourhood, by name, there had been a number of cases of illness amongst the coolies, about the diagnosis of which he was very uncertain The following is a short account of the endemic in question, the salient features of which are set out in the accompanying table and house plan

Takvar Epidemic —Some time shortly before the beginning of June 1912 (the exact date is unknown) two cooles return to the Takvar Tea Estate from a visit they had paid to a village in Sikkim, where an illness similar to that here described was said to have been prevailing of them was slightly unwell when he returned, and very shortly afterwards they were both taken seriously ill They both recovered, and no particular attention was paid to their illness About June 7th another cooly was taken all and died after about a week's illness About ten days later two more were taken ill and after a short illness In this way eight patients in succession were taken ill and died at intervals varying from two to three weeks Then three coolies were attacked about the same time and recovered after an illness lasting about a week Then three weeks later three more coolies were attacked and recovered, and there was one later attack which recovered about the date of which no record was kept.

All these cases were attended by similar symptoms and there is no doubt, I think, that they were suffering from the same disease. The illness was characterised by fever, jaundice headache and pains in the back and limbs. There was no rash and no albuminum. There was considerable prostration even in the case of those who ultimately recovered.

On September 19th Dr Seal received information of the illness of patients 14, 15 and 16 in

TABLL TAKVAR EPIDEMIC

					3. 2.	DDD IMICO	1311013		
No	Race	Sex	Age	Occupa tion	Caste	Approxi mate date of attack	Date of death	Approximate date of reco very.	Revarks
1	Nepaulı	М	30	Cooly	Jimdu	,		,	First attacks, date uncertain, re covered, related to, & lived with 14, 17 & 16, also related to
2	Do	F	14	Do	Do	,		,	7 & 17
3	Do	M	18	Do	Do	c 7612	15 6 12		Attended by 14, 15 & 16
4	Do	M	22	Do	Do	c 24 6 12	1 7 12		\\ \frac{1}{2} \\ \fr
5	Do	M	81	Do	Do	c 26 6 12	3 7 12		Attended by 11, 12 and 13
6	Do	F	80	Do	Do	e 15 7 12	22 7 12		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
7	Do	M	22	Do	Do	c 2812	9 8 12		Lived with 1 & 2 for some time
8	Do	F	24	Do	Do	c 3812	10 8 12		S Divide with a second
9	Do	F	3	Do	Do	c 9812	16 8 12		Sister of 11
10	Do	M	14	Do	De	c 24 8 12	31 8 12		Brother of 17
11	Do	M	25	Do	Do	c 24 8 12		c 1912	
12	Do	1.	25	Do	Do	c 24 8 12		c 1912	Attended 5 & 6, attended by 16
13	Do	М	6	Do	Do.	c 24 5 12		c 1912	<b>)</b>
14	Do	M	60	Do	Do	c 14 9 12		c 22 9 12	
15	Do	F	56	Do	Do	e 14 9 12		c 22 9 12	Father, mother and son Attended 1, 2, 3 and 4, 16 also attended 11, 12 and 13
16	Do	M	20	Do	Do	c 14 9 12		c 22 9 12	<b>)</b>
17	Do	M	21	Do	Do	, ,	· 	,	Later attack, date unknown
^•	1	1	j	,	ı	<u>'</u>			·

the accompanying table, and asked me to go and We went together on the see them with him following day, and found the three patients, father, mother and then son who was about 18 years old, all seriously ill They had been ill about 6 or 7 days, the father, patient 14, appeared to be dying, his pulse was hardly perceptible, he was only semi-conscious, his tongue was dry and covered with brown fin, he was slightly jaundiced, his liver was enlarged downwards, and was a little tender to pressure, His wife, patient his temperature was 1016 15, was very weak but seemed to be over the worst of the disease, she was still a little jaundiced and had an enlarged and tender liver boy, patient 16, was still obviously ill, temp 100 4, jaundice, headache, pains in the back and limbs, enlarged and tender liver, but he seemed to be keeping up his strength well All three of these patients ultimately recovered We also saw patients 11, 12 and 13, who were still weak but otherwise well

Blood films were taken from patients 14, 15 and 16, and examined later in Darjeeling. The blood of 14 shewed nothing abnormal, 15 had a slight leucopenia, but nothing else, 16 had a leucopenia, and a considerable number of spinochætes closely resembling those of relapsing fever, one or more were to be seen in every field under a 1/12" oil immersion

House Plan of Takvar Epidemic

No cases Patients 10 & 17	9, 11, 12 & 13	No cases
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No cases	Patients 3, 4, 14, 15 & 16	Patients 5 & 6	Patients 1, 2, 7 & 8	No cases
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A study of the house plan and summary seems to bring out the following facts —

The disease was introduced by patients 1 or 2, or both, and patient 3 must have caught it from one of them

Patients 4 and 5 caught it either from 3 or from 1 or 2, probably I think from one of the latter

Patient 6 may have caught it from any of the preceding patients

Patients 7 and 8 may have caught it from any of the preceding patients, but as they were living for some time with 1 and 2, it is probable that they got it from them I think 7 was also related to 1 and 2

Patients 10, 11, 12 and 13 seem to have been one batch and as the three latter all attended 5 and 6 it seems probable that they caught it from one of them. This would make the

meubation period from 5 to 8 weeks, but they may have caught it from one of the other patients

Patients 14, 15 and 16 were father, mother and son, and all three attended 1, 2, 3 and 4; 16 and probably the other two also attended 11, 12 and 13. I think they probably caught it from 11, 12 or 13, which would make the period of incubation about 3 weeks in their

If, as is probable, the disease is carried by some intermediate insect host, the period of incubation counting from date of contact with another case, might vary within very wide limits depending on the stage of development of the parasite in the insect when it was transferred from the sick to the healthy

On September 231d information was received of three patients suffering with similar symptoms in Daijeeling itself On investigation one was found to have already died, and the other two to have recovered; then blood shewed nothing. the next house to one of these, however, was found a girl seniously ill with fever, very marked jaundice and pains in the limbs On examin= ation her blood was found to contain spirochætes, though they were somewhat scanty in numbers She was taken into hospital and died two days later. A full history of her case will be found below, patient B A somewhat similar epidemic to that on the Takvaı Estate seems to have occurred among her relatives, but accurate particulars were not procurable.

At this time Major Gwythei, I MS, very kindly gave me permission to examine suspicious patients in the Victoria Hospital, and the staff of the hospital iendered me much assistance in taking blood films, and bringing to my notice suspicious cases in the town and in other ways. Through their help the other two cases of which I have a record were brought to my notice, patients C. & D

The following points will be noticed on examining the case records and temperature charts of patients B, C and D, the only ones about whom I have been able to get anything approaching complete records

In every case the illness is severe. The temperature is irregular and shews no resemblance to that of relapsing fever. No relapses occur in the case of those who recover

The spirochætes disappear before death or recovery, and their disappearance is accompanied by a leucocytosis, and there appears to be no crisis

I am disposed to regard this as a fever caused by spriochætes, and hitherto undescribed; there are many points about it, however, which require further study, and it would be unwise to speak too certainly with such scanty materials from which to draw conclusions

Study of the organism -The sprochete closely resembles that of relapsing fever, but I am inclined to think it is on the average somewhat shorter and thinner The common length appears to be from  $6\mu$  to  $20\mu$ , and I have seldom if ever seen any longer than  $20\mu$ The thickness is about  $\frac{1}{4}\mu$ The number of turns varies from about 3 to 8 Many specimens are bent into spirals like watch springs, or into figures of eight, and other irregular forms

The organism stains deeply with Leishman's and Giemsa's stains, but does not retain the

stain by Gram's method

I sent a stained film to Capt Vackie, INS. and he very kindly examined it for me, and gave me the following opinion about the spinochietes -

"I find they tend to group themselves into ranges, the shorter from 9-11 $\mu$  and a larger set from  $15-18\mu$ , and this is what often happens in the Bombay form On the whole those in your slide tend to be shorter than in the type specimens, but as they are often so in blood at the acutest period of the disease, it is not a very reliable guide

"There is evidence in some individuals of transverse division as is the rule morphological features do not suggest any pecu-

harities"

I have only once seen the organism in motion, and that was in a specimen of blood from patient C on the eighth day of the disease It was extremely difficult to see, inovement was by no means active, it moved slowly backwards and forwards pushing red blood corpuscles out of its path and shewed also bending and twisting movements, but none of its movements appeared to be as active as those of Sp. Obermeni are said to I studied this specimen in fresh undiluted blood, under a cover-glass, immediately after

drawing from the finger

I collected samples of blood from each of the last three patients B, C and D in capsules partly filled with sterile salt and citrate solution no case did I see living (1 e, moving) spirochætes in these tubes after an interval of 24 hours or more, but their numbers as judged by stained films seemed to increase up to about 48 hours, after which they diminished and disappeared after about four days. Films prepared from these capsules always shewed the organisms collected into groups of 3 or 4 or more, arranged with their long ares approximately parallel, and more or less closely interwoven, I was unable to make up my mind as to whether this was evidence of longitudinal division of agglutination

I injected some of this citiated blood from each of the patients B, C and D into white lats, at intervals varying from 24 to 72 hours after it was drawn, but in no case did any of the injected rats shew any sign of illness within 3 weeks, or in one case 6 weeks after injection nor did I recover sprochætes from their blood

Source of infection -I was unable to find any evidence as to the way in which infection Lice abound on all lower class natives is spread in Daijeeling, bugs are also fairly common in I did not come across any ticks. then houses I dissected a number of lice caught on patients with spnochates in their blood, and a number of bugs from infected houses, but in no case did I find any spinocheetes I tried to get some of these bugs and lice to bite a white int but failed

Further observations -Sub-Assistant Surgeon Swole, who was in charge of the infectious diseases ward at Daijeeling, in which these and other suspicious cases of illness were isolated. tells me that when he was with the Dalai Lama's party at Kurseong in June, he saw five cases of similar fever with two deaths in people who had recently come from Tibet He says he found a spirochæte in the blood of one of them, so I think that there is no doubt that the same fever occurred there also

The tea garden coolies on the Takvar Estate stated that they knew the fever well in Nepaul, and that it was very fatal there, but if a patient lived till the eighth day he generally recovered

I heard also from what I believe to be trustworthy sources, that on another tea garden in the district an epidemic of a similar character had broken out in a group of houses, and 20 out of 21 of the inhabitants had died

I have tried to get photographs of the spirochæte, but none so far have been successful.

I should like to take this opportunity of expressing my thanks to the following gentlemen

Major Gwyther, 1 M 5., for allowing me to make such free use of the Victoria Hospital, Darjeeling, in my work

Di Baldwin Seal for permission to publish

particulars of the Takvar Epidemic

Mi Dominy of the Takvai Tea Estate for getting particulars of the epidemic for me

Asst Surgeon N C Sen, Rai Salub, and the rest of the staff of the Victoria Hospital, for then assistance

Sub-Asst Surgeon Swole for his help in taking notes of the cases, and for giving me much assistance in obtaining particulars about them

Since writing the above I have had some more slides sent me from Darjeeling in December, in three of which spirochetes were present, so the disease seems to be continuing in spite of the cold weather

#### CASE B

Female, age about 18; 1ace, Nepauli, occupation, cooly, religion, Hindu, blacksmith caste History of present condition - Lived in D H Ry servants' quarters with her second husband till about

September 7th or 8th when she went down the hill to Gyabari, where her parents and her first husband live On September 15th or 16th she was taken ill with rigors, headache and pains in the back and limbs. She continued ill and returned to Darjeeling about September 21st or 22nd, I saw her on the 23rd, and on examining her blood I found spuochetes as mentioned above They were scanty in number, and there also appeared to be a scarcity of leucocytes. She was admitted to hospital on the 24th

Condition on admission -24th September 1912 -Female, age about 18, pregnant about 6 months Temperature 102 Pulse, small, 108 Wandering and only semi conscious Markedly jaundiced, liver enlarged, spleen not palpable No other signs, patient was not

sufficiently conscious to complain of pain

Blood - Spirochætes found with difficulty, leucocytes appeared to be normal in numbers

25th September 1912 - Patient abouted a male fœtus at 11 AM The placenta was retained and had to be removed by hand at 2 P M

Blood - Spirochætes could not be found Very marked leucocy tosis

Patient unconscious -26th September 1912 - Patient died at 8 A M without recovering consciousness

Family history—Her parents and all her first hus band's relatives were healthy

Her second husband had relatives living in Jitan Jhora, Kag Jhora, and Toong Soong, all in Darjeeling In June last some of those in Jitan Jhora suffered from a similar illness and were visited by their relatives from the other two places and from the railway servants' Illness of a similar type then appeared amongst her husband's relatives in all these three places I have been unable to find out exact dates of illness or the exact relationship of those who fell ill are said to have died, but again I have been unable to obtain any reliable information about their numbers, etc I think, however, it is probably that some at any rate of these relatives were suffering from the same fever

Some of these patients were removed to the Victoria Hospital, Darjeeling, and there also a similar illness attacked some members of the menial staff and there

were some deaths amongst them

#### CASE C

Male, age 36, occupation, ice mistri, iace, Nepauli, religion, Hindu, caste, Kami Admitted to Victoria Hospital, 24th September 1912, at 9 A M

History of present condition—Patient stated that he had been suffering from fever for two days. His illness commenced with a rigor, followed by headache and pains in the limbs and body His bowels were opened once

Condition on admission - Complains of headache and pains in the limbs, temperature 1016

Heart and lungs, nothing abnormal found spleen not palpable

Liver not palpable, no tenderness, no jaundice Tongue thick, white fur, bowels open

25th September 1912 - Pains as before, bowels open four times, tongue furred, pulse, quick and regular 26th September 1912—Pains less in the evening,

27th September 1912 - No change 28th September 1912 - Slightly Jaundiced, patient delirious in the evening, tongue dry pulse and respita tion quick and regular

Blood films taken On examination spirochætes were

found in small numbers, leucopenia
29th September 1912—Delirious and boisteious Blood, spirochætes scanty, leucocy tes normal 30th September 1912 — No delinium, pulse feeble Blood, spirochætes very scanty

1st October 1912 - Spirochetes not found, lencocy tosis

2nd October 1912 - Bowels moved twice, some blood in stool Pulse feeble, subcutaneous saline administered

3rd October 1912 - Slightly delirious, patient weak, oulse weak and compressible, saline injection repeated, bowels open four times

4th October 1912 - Weak, no delirium, pulse weak, respiration shallow and huiried, two loose motions

5th to 16th -Patient improved steadily, and was

discharged on the 16th October

No spirochetes were found after 30th September 1912 The accompanying temperature chart shews no resemblance to that of other fevers caused by spirochæ

Family history -This patient's son, aged 18, was also in hospital at the same time suffering from an un diagnosed fever with similar symptoms. I failed to find spirochetes in his blood, possibly through seeing him too late in the disease, and so I have not included him amongst my cases, though I have little doubt that he was suffering from the same fever He recovered.

#### CASL D

Male, aged 36, Chupiassi, caste, Kami

I saw this patient in his own house on October 9th before his admission to hospital, and on examining his blood I found numerous spirochætes, leucocytes appeared to be scantv

10th October 1912 -Admitted to hospital and gave

the following history

His wife fell ill, he thinks about 21st September 1912. and suffered from fever, jaundice and delitium, and died on 5th October 1912

He himself was taken ill on the 6th with a succession of 11gors, frontal headache, and muscular pains in the limbs, followed by flushing, great heat and pain in the

epigastrium

Condition on admission -Still has fever, pains in the limbs and epigastrium, severe frontal headache, tongue coated, bowels constrpated, liver slightly enlarged and tender, slight jaundice, poor appetite Temp 102, pulse 90, very weak

12 noon, temp 105, thirsty, feels very hot, wandering, slightly better after sponging Blood, spirochetes scanty,

leucocytes normal.

11th October 1912 - Better, suffers from insomnia, ordered Quin Sulph gi v tds Blood, spirochietes not found, slight leucocy tosis

12th October 1912 -Rheumatic pains all over body, pulse fan, appetite good Blood, leucocytosis, no spirochætes

13th October 1912 — Improving Blood, slight leucocy tosis

14th October 1912 — No fever, still has pains, complains of insomnia, pulse fair, tongue clean and moist, appetite good, fainted on trying to get up

20th October 1912 - Discharged

#### A Mirror **Hospital** of Practice.

# THE PITUITARY GLAND AND THE USES OF ITS EXTRACT IN LABOUR

BY CHARLES MILNE, MR,

LT COI, IMS,

Civil Surgeon, Mussoorie

Until very recently the action of the Pituitary gland on the animal organism was absolutely unknown, but recent researches have shown that not only has it many and varied actions, but its presence is absolutely essential to life.

The Pituitary gland, as now usually described, consists of three parts—an anterior and a posterior lobe, united by an isthmus or hilus These portions differ in a fundamental manner from each other, in their development, their structure and in their actions or uses

The anterior lobe is very vascular and consists of glandular epithelium—it is developed from the ectoderm of the stomatodeum, ie, the buccal mucous membrare This portion is supposed to have a controlling action on the growth of the body, being very intimately connected with calcium metabolism and indirectly with the development and deposition of fat pituitarism causes an excessive growth of the hones and skeleton generally as in acromegaly and gigantism, while hypo-pituitaiism causes dwarfism, infantilism of the sexual organs, and adiposis dolorosa Achondioplasia is also believed to be due to a defect of the anterior lobe Feeding growing animals on the anterior lobe hastens the growth of the body generally moval of the antenor lobe causes death in a few days, while removal of the posterior lobe has no such effect Haberfeld has recently shown that a small mass of pituitary tissue persists in the naso-pharynx behind the septum nası and close to the tonsil This post-nasal remnant is not unlikely connected with the development of adenoids, and may be the cause of the changes in the facial bones, so persistently and perhaps erroneously attributed to nasal an obstruction The hilus is developed along with the anterior portion from the epiblast of the buccal cavity, and has a structure very similar to that of the thyroid gland Colloid material collects between the cells and colloid cysts are sometimes found in it After thyroidectomy the cells of the 1sthmus take on an increased activity, but it is not believed that the isthmus can replace the thyroid in the animal economy, as the hilus like the parathyroids, contains no iodine, and injections of the extracts have totally different effects Farther, the colloid material is a different substance in the two glands

The posterior lobe is a true outgrowth from It is connected by the infundibulum with the tuber cinereum which forms part of the floor of the third ventricle Until a comparatively late period of fœtal life, there is a free communication between the third ventucle and the posterior lobe, and in some of the lower persists in adult life The animals, hisposterior lobe is developed from the grey matter of the third ventricle, but in extra-uterine life, there are no nerve-cells in it, only neuroglia It is an extract of this posterior lobe which is now used so extensively and successfully in It has been known for some obstetric practice time that an injection of a watery extract of this lobe causes a temporary rise of blood-pressure in the same way as an extract of the supra-nenal glands.

This action is more prolonged in the former, but cannot be repeated by a second dose until after a long interval. It thus differs from adrenalin, which causes a rise of blood-pressure after each fresh injection. The rise of blood-pressure is due to the contraction of unstriped muscular fibre all over the body, and has an especially well-marked effect on the pregnant uterus.

Another action is a specific effect on the kidneys, where it causes a dilatation of the bloodvessels and pronounced dimesis Adienalin contracts the renal arterioles Another action of the extract is an increased peristaltic action of the intestines, which is so marked as to overcome the paresis which sometimes supervenes after abdominal operations, an action probably closely allied to that of Stailing's peristaltic hormon The pituitary gland like the thyroid, undergoes hypertrophy during pregnancy, and it is said undergoes such structural changes, that a histologist could tell from an examination whether the subject had ever been pregnant of not Frolich and V Frankl-Hockwart have proved experimentally that pituitary gland extract causes contraction of the gravid uterus in rabbits and thereafter, it was extensively used a remedy for post partum hemorrhage Labee Hofhaner gave it to increase the pains of labour, and the success he enjoyed was so great that it has now been extensively adopted by many continental obstetricians

In obstetric practice the drug is applied by means of a hypodermic or intramuscular injection of 1c c of Burroughs, Wellcome & Co's infundibular extract of the pituitary gland

So far as my own experience has gone, and as far as I have read, there are absolutely no ill effects from it whatsoever The injections are given when the uterine pains are weak, and within five minutes of its exhibition, a vigorous This lasts for a minute or contraction sets in two, and is followed by others in quick succession Later, the intervals become longer and the pains less strong, but so far, I have never found it necessary to give more than one in-jection, and I believe a repetition is not I have used it followed by further contraction now in about fifteen cases, and I have been absolutely surprised at its efficacy and sureness The cases I have chiefly employed it in all those where the pains either in the first or second stages have become infrequent and weak, and I am certain it has saved me on many occasions from the necessity of applying forceps

There is absolutely no fear of the uterus going into tonic contraction as in the case of ergotand none of my cases showed any subsequent, excessive relaxation of the uterus, i.e., no post partum hamourhage. It is unnecessary for me

to cite all my cases but the following extracts from my case-book will show how I use it and the success achieved

Labour began at Mrs C aged 32, multipara 6 P.M on 17th February I saw the patient at 9-30 PM, os dilated size of a shilling, I went at again 1 AM, os dilated size of a crown, but head still high, pains were fairly frequent, at 2-45 AM pains had stopped for the time being and patient was getting tired I gave 1 c c. pituitary extract. in five minutes pains had recommenced, and at 2-55 the baby was boin

Mrs D, aged 39, multipara The waters began to come away at 2 P M on 23rd March I saw the patient at 4 PM, the os was very slightly dilated and water was dribbling away, there were no pains, but there was much hydramnios, water continued to come away the whole of that night I gave patient 20 grains chloral and next day and 12 grains bromide at 9 PM 24th she slept. until 2 A M pains then began, but were weak and I was sent for, and arrived about 5 meffective PM, the os was  $\frac{3}{4}$  dilated and pains very weak, at 5-10 I gave 1 cc of pituitary extract, at 5-13 a very vigorous pain began and the head almost at once showed at the vulva, and the child was born at 5-20, and, as in the former case, without a tear or scratch to the vulva or permeum not difficult to estimate the good which a nemedy like this is capable of doing Instead of a patient waiting for hours in the hope of pains coming on we can induce vigorous and most effective pains The amount of suffering which it will save, is incalculable In my opinion, nothing so useful has been discovered for obstetric practice with the exception of chloroform and antiseptics. since the invention of forceps by Chamberlen in the seventeenth century

This action of the extract of the pituitary gland on the gravid uterus opens up a fascinating field of study and speculation both to the obstetrician and to the experimental physiologist How does it come about that the uterus, after carefully guarding and tolerating the fœtus for 280 days more or less should suddenly treat it as a foreign body to be expelled at all costs by violent and at times even fatal efforts changes in the pituitary gland occurring during pregnancy, as pointed out by Haberfeld, would tend to show that the pituitary body might secrete some agent which gradually accumulates in the mother until a sufficient quantity is present to act specifically on the womb-or is it that the fœtus secretes a hormon to stimulate the uteius in the same way as it is believed to do for the stimulation of the mammary glands of the May it not be expected that some day physiologists will supply us with say, an extract of the pituitary gland of a gravid or even parturent animal which would enable us to induce labour at will, and thus avoid the clumsy

and at times dangerous inductions of premature lahom as at present practised

#### THREE CASES OF EXCISION OF THE THYROID PERFORMED IN CHITRAL

BY G F GRAHAM, MD,

CAPTAIN, I.MS,

AND

(' II SMITH, MD, FR.OS,

CAPTAIN, IMS,

Chrtr al

Considering the extreme prevalence of goitre among the hill tribes of India it is surprising how few accounts of operative treatment, carried out in India, have appeared in the recent medical journals

In Chitial numbers of patients come to the civil hospital seeking relief for this disease They are usually sent away with some local application which practically never does any good Until recently no surgical measures for the treatment of the gortre had been adopted in Chitral, with the result that at first some difficulty was experienced in persuading these people to be operated on

Recently three cases have been treated surgically and the tumous successfully Kocher's method of procedure was adopted with the exception that chloroform was used instead of a local anæsthetic

The anæsthetic was administered on a Skinner's mask by a Sub-Assistant Surgeon who has had only the ordinary experience in anæsthetics of a subordinate in military employ The anæsthetic so used was perfectly satisfactory in all three A small pillow was placed under the patient's shoulders so extending the neck and allowing more room to work in Kocher's collar meision was used and the ligature material was After closing the wound a drainage tube was inserted and removed after forty-eight hours

The following is a short outline of the three cases ~

Case 1 -Male Aged 22 Native of Chitral history was that the goite had been present from childhood, but for the last few years had been steadily increasing in size

The condition of the goitie was as follows -The enlargement was confined to the right lobe which was hard The only other symptom was some huskiness of the voice

Excusion of the right lobe of the thyroid was performed The lower surface of the right lobe was found to be rather adherent to the trachea

The wound healed by first intention, and the patient left hospital two weeks after the operation perfectly The huskiness of the voice had disappeared

The excised portion of the gland weighed five ounces, it was solid and showed no signs of cysts and on section

was reported to be a pure thyroid adenoma

Case 2—Male Aged 20 Native of Chitial The
history was that the goitre had appeared as a boy and

The condition of the goile was as follows—Great enlargement of the right lobe of the thyroid, the enlargement extending downwards to just under the inner end of the clavicle and manubrium sterin. There was also some slight soft enlargement of the left lobe

The right lobe of the thy roid was excised. In spite of the extension downwards of the goitre behind the sternum very little trouble was experienced in legatur-

ing the inferior thyroid veins

The patient made a good recovery and left hospital within three weeks of the operation. On discharge from hospital it was noted that the slight enlargement of the left lobe had disappeared

The excised potition was exceptionally large weighing thirteen and a half ounces, it contained several cysts, the largest containing about four or five ounces of fluid

lurgest containing about four or five ounces of fluid

Case 3—Male Aged 22 Native of Chitral The
patient stated that the goitte had started five years

ago
The condition of the goitie was as follows—Irregular
enlargement of the right lobe and isthmus, the left
lobe was also slightly enlarged, but the enlargement was
general and soft

The right lobe was excised. The patient made a good recovery and left hospital three weeks after the operation. On leaving hospital the slight enlargement of the

left lobe had disappeared

The excised portion of the gland weighed four and a half ounces and contained a few small cysts, in the centre of the tumour there was a small calcareous deposit. The absence of any difficulties, the non appearance of any complications in these cases, and the absence of any distress, pain, etc., after the operation leads one to hope that the surgical treatment of goithe will become popular among the inhabitants of this country.

### MALARIAL GANGRENE

BYFAL HAMMOND, MRCP,

Major, 1 M/S , Civil Surgeon, Maymyo

Or all the complications and sequelæ of malaria gangiene is probably the rarest. The two cases described below are the only ones I have ever seen or that have occurred in the experience of many other physicians to whom they were shown.

1 Ramaontha, Hindoo male, aged 19, was admitted to hospital on the 5th June 1912. He was in a state of collapse. Temperature 97.8° Pulse 122. He was perfectly conscious, and able to take nourishment well. Under brandy and strychnine he rallied considerably, and three days later the temperature was normal and the

pulse 92

On examination of the blood an enormous number of malignant tertian rings were found, one corpuscle in every three containing these forms, and each infected corpuscle often containing two or three rings. The spleen was enlarged and hard and extended three inches below the costal margin. The liver was normal and the heart and lungs were sound. There was a previous history of malaria, no syphilis. On the 5th day after admission it was noticed that the skin over both calves was becoming dusky in patches, which spread rapidly over the whole surface of the leg, and it was obvious that gangrene was threatening. In addition to his daily injection of quinine bihydro chloride gis x an intravenous of grs v to the pint of saline was given, the legs were kept warm, and every affort possible was made to maintain asepsis. In spite of all precautions moist gangrene became three days later fully established in both lower extremities and the usual train of septicsymptoms supervened. An irregular line of demarcation commenced to form in both limbs and on the 20th June—fifteen days after admiss

sion—the boy's condition was so serious that operation was obviously necessary. Colonel Hale and Major Stoney Aichei, RAMC, kindly saw the case with me and agreed that amputation at the right knee was necessary. It was determined to make a further effort to save the left leg. Amputation of the right leg at the knee joint was performed in the 21st June as a rapidly as possible, and after six weeks of continuous anxiety and trouble he recovered with a very useful stump. On the left side the foot sloughed, and after two plastic operations had been performed on the riegular fragments left there remained as much stump as would be left after a Lisfrane disarticulation. His recovery is mainly due to the devoted care and attention of the ward boy, and the troub'e taken by Sub Assistant Surgeon Lambabaddin.

2 Karm hhan, Mahommedun male, aged 25, was admitted on the 7th December 1912, complaining of fever, vomiting, pain, and mability to lift his hands. He stated that he had never been ill before, that he was attacked with fever in the jungle which had now lasted for 8 days, and that he lost his reason to such an extent that he did not remember what treatment he had

received

On admission his temperature was 96°, pulse at the wrist imperceptible, the whole body was cold and claiming, and he was extremely shaky. Respirations were weak and shallow, and there was duliness and mucous rates at

both pulmonary bases

Both wrists were dropped, and he was quite unable to elevate the hands which were cold and insensitive Both fect were very cold and mactive, and odema extended as high as the knee on both sides. In spite of every effort to improve his vitality by brandy adie nalin, stychnine, digitalis, and the intravenous ad ministration of quinine, he developed gaugiene of all four extremities which rapidly became moist and septic, so that the temperature which had been consistently subnormal, rose on the 7th day after admission to one typically septic in character. It appeared as if the typically septic in character condition of the limbs might improve and the patient ultimately recover with various deformities and loss of limb, but unfortunately the ordema of the bases of the lungs become more pronounced Slight relief followed vivisection which was performed on the 18th December, but he sank and died on the 22nd after having made a very plucky and determined fight for life No post mortem was allowed, so the actual cause of the gangrene was hard to determine, whether the tissues died from venous thrombosis (due to lack of vitality and consequent venous stasis) or through sheer maintion from enfeebled arterial supply, or possibly arterial thrombosis, it was difficult to conjecture. In the first case, the arteries of the amputated leg showed no thrombi, but as I was unable to select the site of removal, the knee-joint being chosen for the sake of rapidity, it is possible that the aftery was blocked at a higher level

An interesting point in both cases was the fact that on admission the collapse and continued subnormal temperature were the outstanding features, whilst the history of malaria was so indefinite, that if a blood specimen had not been taken the cause of the condition might have easily been The intravenous injection of quinine which usually affects so marked an improvement on malarial coma proved very ineffectual in It is probable that the French both cases method of sterilising the limbs with hot air would have been very useful, but no apparatus was available for the purpose, and, in its absence, it will easily be realised that it was impossible to keep a native patient from developing septic infection in the dead tisques

# Indian Medical Gazette.

# THE MEDICAL BOARD OF THE INDIA OFFICE

SURGEON-GENERAL SIR ARTHUR MUDGE BRAN-FOOT, KOIE, vacated the office of President of the Medical Board of the India Office, on attaining the age of sixty-five, on 28th February 1913, handing over charge to the second member, Sir Richard Havelock Charles, G.OVO, Lieut-Colonel John Anderson, OIE, late Civil Surgeon of Lucknow, has been appointed second member

This Board was established in its present form nearly fifty years ago, but was in existence, in a slightly different shape, for nearly a century longer

The Court of Directors of the East India Company appointed a professional Board in London in 1773, to examine candidates for their service. The names of the members are not given in the letter which announces the appointment. The Gentleman's Magazine for July 1793 records the death in London, on 3rd July, aged 77, of "George Marten, Esq., of Limehouse, many years Examining Surgeon to the East India Company." Marten was probably one of the Board appointed in 1773

On Marten's death, Drs Loumer and Hunter took his place Lorimer appears to have died soon after Payments to his representatives are mentioned in 1794-95 Hunter held the post till his death, which took place in London on 29th January 1809

John Hunter, though of course completely overshadowed by his far greater contemporary and namesake, John Hunter, the anatomist, who died on 16th October 1793, was a man, of some note in his day He was educated at Edinbuigh, took the M D, there in 1775, and the L R C P in London in 1777 He then entered the A M D, and served in Jamaica in 1781-83 Quitting the Army, he settled in practice in London, and in 1788 published a work entitled Observations on the Discases of the Army in Jamaica, which reached a second edition in 1796 and a third in 1808 He was elected F R S in 1787, F R C P in 1793, and was subsequently appointed Physician Extraordinary to the Prince of Wales

Hunter's successor was William Dick, who entered the Bengal Medical Service on 8th

November 1781, and retired on 17th December 1802 For almost the whole of his service in India he was Superintendent, and owner of the Calcutta Lunatic Asylum, which he originated He resigned in 1818, and died in Scotland on 16th January 1821. About the same time another William Dick was serving in the Prince of Wales Island Medical Service, he retired on 6th November 1807

William Fiederick Chambers was appointed in 1815 as Assistant to Dick, and succeeded him He held the post till 1835, when he resigned, owing to the pressure of other work, having become the leading Consulting Physician Chambers was born in India in ın London 1786, educated at Cambridge and Edinburgh, and at St George's, took the degrees of B. A in 1808, M A in 1811, and M D. in 1818, at Cambridge, and in 1816 was appointed Physician to St George's Hospital, being elected F R C P in He was appointed Physician in Ordinary 1819 William IV in 1836, and in the following year, on her accession, to Queen Victoma, also to her mother, the Duchess of Kent. He received the Knighthood of the ın 1839 Royal Hanoverian Guelphic Order in 1837 died at Lymington on 17th December 1855

When Chambers resigned in 1835, another retired officer of the A M D, John Robert Hume, was appointed in his place Hume was born in 1781, educated at Edinburgh and Glasgow Universities, entered the Army, and served in the Peninsula When peace was declared, after Waterloo, he was placed on half-pay, and settled in practice in London. He took the M D, St Andrews, in 1816, and the L R C P, London, in 1819, received the D C. L from Oxford in 1834, and was elected F R C P in 1836 the same year he was appointed a Commissioner ın Lunacy He was also Physician to the Duke of Wellington He resigned his post under the Company in 1845 When medical officers were first, in 1850, made eligible for the Military Order of the Bath, he was gazetted CB He died in London on 1st March 1857

When Hume resigned in 1845, two of the most distinguished officers on the retired list of the I M S, 811 James Annesley and (Sir) James Ranald Martin, were candidates for the post The Chairman of the Court of Directors, however, proposed, and carried by a small majority, the appointment of his own medical attendant, Di John Scott, a general practitioner at Barnes, who had made two voyages in early life as

Surgeon of the Farquharson Indiaman Scott was born at Benholme, in Kincardine, on 26th January 1797, studied at Marischal College, Aberdeen, from 1810 to 1814, but did not graduate, and afterwards at the London Hospital and Edinburgh University, taking the L R C. in 1817, and the M D in 1820 at Edinburgh Scott outlived the Company, dying of angina, on 18th January 1859

Shortly before Scott's death, in 1858, the Crown had taken over the Government of India from the E I Co The title of "Examining Physician to the Company" therefore ceased to exist Scott's successor was James Ranald Martin, who was appointed as Physician to the Secretary of State for India in Council Martin's career is too well known to recapitulate it here. He entered the Bengal Medical Service on 5th September 1817, and retired on 20th May 1842. He received the CB on 25th April 1860, and was knighted in the same year.

On 31st October 1864, the Medical Board of the India Office was established, Martin's title being changed to that of President of the Board At the same time, he was granted the rank of Inspector-General He resigned on 17th November 1874, and died ten days later, on 27th November

Martin's successor was Sir Joseph Fayrer, who for the two preceding years had been junior member of the Board. Fayrer held office for just twenty years, resigning on 12th January 1895, when Sir William Hooper took his place He, in turn, vacated towards the end of 1903 when Sir Arthur Branfoot was appointed

The Medical Board, as constituted in 1864, had three members, the second being an officer of the I M S, and the third an officer of the A M D. The third member was dropped in 1873. Up to 1889 the second post was usually filled by an I M S officer on furlough since that year by a retired officer.

The second membership has been filled successively by—

J W Mudge	(1864 66)	A Sanderson	(1881 82)
W Thom	(1867 68)	J Jones	(1882.81)
J R Miller	(1868 69)	H Cryley	(1885 87)
A H Hiliai	(1869 70)	W R. Hooper	(1887 89)
F Broughton	(1871)	S B Putudge	(1889 93)
W Niven	(1871 72)	K McLeod	(1893 96)
J Fayrer	(187274)	E F Drake	
J Paul	(1875 76)	Brockman	(1896 1900)
S B Partridge	(1877 79)	A Crombie	(1901 03)
J Ewart	(1879)	A J Hillcocks	(1904 06)
N Hopkins	(1879 80)	E Bovill	(1906 08)
W J Palmer	(1880 81)	R H Charles	(1908 13)

The A M D members of the Board were, successively, Surgeon-Major D R Mackinson, W K Swettenham and T G FitzGerald

# Current Topics

# CHANGES IN THE DIRECTOR GENERAL'S OFFICE

The growing volume of work in the office of the Director-General, I M 8, has resulted in it having been found necessary to increase the establishment by the addition of an officer During the past few years there have been several new items of work transferred to the Director-General, all of which give rise to much correspondence, these are questions concerning accelerated promotion, examinations of lieutenants, courses of study at home and in India, the X-1ay institute, specialist appointments, and the steady growth of the I. S M D has added materially to the number of questions regarding recruiting, examinations and promotions. The stores side of the office, too, has long needed the services of a whole-time officer The Secretary of State has now decided that the office shall be reorganised

In place of a Secretary there will now be a Deputy Director-General, and an Assistant Director-General (Stores) The Deputy Director-General will draw the same pay as at present, the Assistant Director-General Stores will be paid as a Medical Store-Keeper

The Assistant Director-General will be an inspecting officer, as far as Medical Store Depôts are concerned, and will thus take the place of the Inspecting Medical Store-Keeper

#### A DISTINGUISHED ARMY MEDICAL OFFICER

ONE of the most famous military medical officers of our time, Surgeon-General John S Billings, of the United States Army, died in New York, on 11th March 1913, aged 73 He graduated at the Ohio Medical College in 1860, and soon after joined the Federal Army, and served throughout the American Civil War, from 1861 to 1865, at the conclusion of which he was Medical Inspector of the Army of the Potomac He was next attached to the Surgeon-General's Office in Washington, and there developed the library of that office, which, under him, grew from a few hundred volumes to be the greatest medical library in the world. He is, however, probably best known by his literary work Index Catalogue of that library was begun in 1880, the first series of sixteen volumes was completed in 1895, the seventeenth volume of the second series has recently been issued this catalogue started his other great work, the Index Medicus of current medical literature He was also in charge of the preparation of the statistics of the tenth and eleventh census of the

United States, and took the chief part in the planning and organisation of the Johns Hopkins Hospital For several years he lectured there on the history of medicine. In 1891 he became Professor of Hygiene in the University of Pennsylvania, and in 1896 Director of the New York Public Library Honorary degrees were conferred on him by the Universities of Oxford, Edinburgh, Dublin, Munich, Harvard, and Yale

#### INJURIES RECEIVED ON DUTY

CHAPTER 37, Sec III, of the Civil Service Regulitions, is probably a one not often read by medical officers—it is, however, very important and the following order of the Govt of India (Home Dept 2092 C), dated 28th March) will be regarded as very necessary and satisfactory. We have known of several cases where Surgeons in India have been seriously injured in this way during operations, and we must admit that the Govt of India have liberally treated them. The new order is as follows—

"It has been ruled by the Secretary of State for India that the performance of operations on venereal patients may fairly be regarded as a duty involving extraordinary bodily risk within the terms of Article 735 of the Civil Service Regulations Proposals for the grant of pensions or gratuities to civil medical officers injured in this manner may accordingly be dealt with under Articles 739 and 740 of those Regulations"

# THE 7TH REPORT ON PLAGUE

What is called the seventh report on plague investigations in India is issued by the Advisory Committee in the precental fashion previously commented upon in the Journal of Hygiene (Plague Supplement II, January 1913)

It consists of about 400 pages, but the only article of general interest in the unsigned one on plague in Madias City, or rather on the fact that plague has never gained a foothold there—as also in Eastern Bengal—"despite the fact that opportunities for importation appear to have been abundant since 1896."

No very certain conclusions are reached so we think we had best quote them in full

"As the result of our enquiries we find therefore that the conditions of house construction in Madras City are not unfavourable to the establishment of epidemic plague, and that suitable climatic conditions prevail during the winter months. As regards the rats and rat fleas, it appears that, though neither are so plentiful as in other plague infected places investigated by us, there are—probably enough of the both to maintain plague, though perhaps few enough to render implantation ble to plague. It appears, therefore, that Madras (ity is not immune to plague in the sense that the conditions prevailing there (as far as they have been investigated by us) are such that plague could not become established in the place. There has been no large outbreak which definitely proves this, for the single epidemic from Which Madras has suffered was of a mild character have been gathered from the description given above, the outbreak was confined to a few small hamlets on the outskirts of the town and was dealt with with the

most exemplary vigour and determination by the santary authorities, and the fact that the human mortality was relatively slight cannot, under the circumstances, be taken as evidence that the city is naturally an unsuitable place for plague

The circumstances which condition the successful implantation of imported plague are probably the same as those which determine the prevalence of infection when once established. Imported plague is, for example, most likely to start an epidemic if it reaches a place at a time when meteorological conditions are most favourable and rat flers most numerous. In Madras such circumstances are most favourable at a time of year (December to February) which coincides with the plague season in such a possible source of infection as Bangalore.

It seems then likely that Madias has escaped from plague because infection has been unable to reach there or has met with some obstruction immediately on its arrival. The possible sources from which infection might have been brought are very large, considering the abundant traffic with the infected areas in Mysore and in Bombay Presidency. Assuming that infection travels about the country mostly in infected fleas associated either with such merchandise as grain or with the persons of human beings, it is clear that the likelihood of infection traversing any given distance will be proportional to the conditions being favourable to the life of the flea. Experiments have shown that meteorological circumstances have a very large influence on the duration of life of rat fleas apart from their host, a cool moist atmosphere allowing them to survive for ten times as long as in hot dry air. Evidently therefore fleas would have some difficulty in arriving alive at any place which was surrounded by a zone of country where a high temperature, especially in conjunction with a low humidity continuously prevailed. Madras is on the whole a hot place, but in the cooler months the temperature would apparently allow fleas to live for some considerable time, though there is no definitely cold weather to afford really favourable conditions for flea importation.

So much for the influence of natural circumstances Artificial influences are found in the passport system and its associated energetic sanitary administration. As is often the case with practical sanitation where mixed experiments are made by taking various precautionary measures simultaneously, it is difficult to form an accurate estimate of the precise effect of the passport system in vogue in the province of Madras It does not seem to discover very many cases of persons appear to escape its surveillance. On the other hand, its influence in preventing persons who are or may be infected from starting on any journey is very likely considerable.

In view of the above results it seemed proper to extend the scope of the enquiry to other parts of the Madras Presidency, especially as regards the conditions which have a bearing on the facilities for the importation of infection. This investigation is now being undertaken and will shortly be completed, and we reserve any further discussion of the questions outlined above until the whole problem of plague in the Madras Presidency can be examined in detail."

# FLEXNER'S REPORT ON MEDICAL EDUCATION

We have in a recent issue briefly commented on this truly wonderful report. To the medical man it is an interesting as a novel. It is so large that it is impossible to review it, but we think it worth while to collect some facts and figures from its many pages which will be of interest to

There is a chapter on the number and distribution of physicians from which we learn that in the German Empire there is one doctor for every 1,912 inhabitants, and this figure varies from 1 in 3,070 in the rural areas of East Prussia to a ratio of 1 in 849 in Berlin. In Austria the ratio is 1 to 2,120 inhabitants, but it is 1 to 670 in Vienna and in Olmutz there is one physician for every 390 inhabitants.

There are 27 medical schools in England and Scotland (excluding some half dozen in Ireland where ephemeral universities have in recent year risen and decayed) and as compared with Germany-England with about half the population has onethird more medical schools In terms of output the annual average registration of physicians has been 513, or an average of only 19 per school In 1907, there were 39,827 registered doctors in the United Kingdom oi 1 to 1,107, but we presume that this figure includes numerous men qualified in the United Kingdom but practising in the services and in the Colonies Overcrowding in the large cities is pronounced, Edinburgh has 1 doctor for 489 inhabitants, Glasgow 1 to 754, Bu mingham 1 to 1,376, Newcastle 1 to 1,418, and London 1 to 945. In the decade 1891-01 while the population increased by 10 per cent, the medical profession increased by 20 per cent, Paris has 1 physician to 767 persons, while it had only 1 to 1,126 so recently as 1894

The chapter of clinical instruction is full of most interesting matter. We can only quote a

few isolated facts

Thus in a recent year Berlin had 1,947 beds for 991 students, Gottingen had 458 beds for 171, Heidelberg 856 for 250 students The following figures are given for certain British hospitals Charing Cross 200 beds, London 922, St Barts over 700, Guy's over 600, Royal Manchester 592 beds, Sheffield 421, Glasgow Western 600, Edinbuigh 900, Aberdeen 200 The distribution of beds to the staff varies much at Charing Cross a member of the staff has 20 beds, at Westminster and St Mary's 30 odd, at Middlesex 40 to 50, at the London 60, at "Baits" 36 to 49 to a physician and 60 to a surgeon physicians and surgeons as a matter of right have no beds, but in many hospitals they are given by courtesy 4 to 6 beds At Edinburgh the surgeons average 56 beds aprece, the physicrins over 40 and the gynæcologist 27 number of beds assigned per student varies, the small schools believe in a large average of beds, the large schools aver that a smaller of beds per student conduces to Five beds is sufficient thoroughness of study per student who has many other things to do, he has 6 at Middlesex, 8 to 10 at St George's and at St Mary's, 5 to 10 at the Royal Free, 10 at Westminster, 5 at the Munchester Royal, in Edinburgh and Glasgow the student selects and pays his own clinical teachers, and great inequalities result. In a recent year one physician had 120 students, another only ten, others, ranged from 20 to 60 apiece One surgeon had 60 diesseis, another 10, at Glasgow one surgeon (an examiner) had a class of 60, in another division of 126 beds there were but 3 students!

### STUDIES IN SMALL POX AND VACCINATION .

This is a handsome and elegantly got up book written by Dr W Hanne, now Assistant Medical Officer of Health of the Port of Liverpool, whom many may remember in India when he was on plague duty and collaborated with the late Major Geo Lamb, I M S

The book is the outcome of a study of small-pox and vaccination based on cases observed in Liverpool The first portions of the book deal with the ever-important problem of vaccination in prevention and in mitigating small-pox and the inverse relation of vaccination scaraiea to the severity the attack is emphasized. The subject of concurrent small-pox and vaccination is also fully dealt with.

The illustrations are very well done and all types of small-pox are depicted, showing what

a repulsive disease it is

What is successful vaccination? As we have recently seen imaginary "inspection" of results of vaccination done by medical subordinates on the second and third day after the operation (!), we think it worth repeating here Di Hanna's description—

"When the term 'successful' is used, it must be understood that the phenomena at the site went through the typical and normal course of human vaccination. These phenomera may be shortly described as follows a slight imflammatory reaction may appear at the site, but nothing of moment occurs until the end of the third day, when firm, flat, elevated papules appear at the site of the operation, these become surrounded by a halo of hyperæmia, vesicles appear on the fifth or sixth day, and are especially marked at the periphery. These are filled with clear lymph, and the zone of hyperæma has increased, with acute swelling, the vaccination is red and firm, and the axillary glands may be swellen Cloudiness begins to appear in the vesicles on the eighth day, and subsequently they become opaque and yellow. The height of the vaccination is reached on the ninth or tenth day, and from this date there are signs of rapid desiccation. The changes most characteristic of vaccination are found during the third, fourth, fifth, and sixth days."

Di Hanna sums up his work in the following conclusions which we may quote in full —

(a) "That the case mortality in the natural disease, i e, in the univaccinated, which ranges from approximately 25 to 40 per cent has been reduced by the power of vaccination to about 3 per cent in those who have been

well vaccinated

(b) That in the unvaccinated persons at the extremes of life, mainly children under 10 years of age and old people, are those who suffer most, the case mortality reaching as high as 50 per cent. In the previously vaccinated, no cases are recorded occurring under three years of age under twenty years of age no deaths are recorded but as age advances the vaccination gradually loses its protective and modifying power.

<sup>\*</sup> Wm Hanna, MD, DPH Large 4to 7s 6d net. Bistol John Wiight & Sons, Ld

(c) That even when, owing to age, and consequent gradual loss of vaccinal immunity, vaccination is unable to stop the development of the disease, it may modify the extent and character of the eruption to such a degree as to make it so exceedingly mild that in many instances the disease may be undetected

(d) That the scar area of vaccination has an important bearing on the severity of the disease, the larger the area, the milder the character of the disease

(e) That the vaccination scal area gets larger as age advances until the 20 30 years age period is reached, it then gradually becomes smaller, in all probability owing to atrophy of the scar tissues

(f) That vaccination performed subsequent to infection with small pox and up to the date of onset of symp toms will 'take' and pass through its typical course

(9) That protection is afforded against small pox by vaccination when performed within three days after infection, but this may not be absolute in cases vaccinated for the hist time, the course of the disease, however, will be exceedingly mild

(h) That there is abundant evidence of the value of vaccination in mitigating the severity of the disease when performed at any time after infection up to date

of onset, and even afterwards"

#### THE MAYO BROTHERS' CLINIC

George's Hospital Gazette (a copy of which was sent us by Colonel G F A Hanns, CSI, FRCP, IMS), contains a very interesting article on the famous clinic of the Biothers Mayo at Rochester, Minn, U S A, from which we take a few extracts -

"The firm consists of five partners, who are the sur cons William J Mayo, Charles H Mayo, and Drs Judd, Beckman, and Balfour They are all related to one another by marriage There are over forty salaried issistants The salaries paid are enormous, I could not get any figures, but I fancy that the assistants are paid five or six times as much as they would be for the same work in this country

The day starts with operations at the hospital at Five theaties are in use, and on an average six major operations are done in each every moining, a total of about thirty On four successive days, for instance, they did 28, 31 29 and 32 major operations

The theaties are rather small, and are no better uranged than the ordinary theatre of an up to date London hospital In each there is a gallery of two tiers, extending round two siges for visitors. Over each operating-table a mirror is swung at an angle, so that if the house surgeon obstructs the view visitors can see the

operation in the mirror

Each theatre is emptied before every operation, and visitors are not allowed in until a bell is rung, when they struggle for good places Visitors from Europe are treated with special courtesy They are given gowns, and allowed to watch the operations from the floor of the theatre, and may wander from theatre to theatre as they will I was enabled by this kindness to see many more operations in the time at my disposal than I could have done had I been confined to a gallery

There is a pathological laboratory attached to the therties where tissue removed is at once examined by the frozen section method. The pathologist used to come into the theatre about two minutes after he had got the material and give a report He never said, 'I think its this,' or 'it look like that,' just 'Carcinoma,' Sarconia,' or 'Tubercle,' as if all arguments were at

I wondered how he dared be so dogmatic on a fioren section, so I went to the laboratory to look at some of them I don't pretend to be an expert, but ther appeared to me as clear as any paraffin section I had ever seen, they were marvellously good "

About 30 operations are done daily, twenty of which are abdominal cases, "I thought all the surgeons good (writes Mr. Ivor Back) but Wilham Mayo is in a class by himself"

"The anæsthetics were given by nurses I don't know if they were probationers. They were so well given that one hardly noticed them at all I never heard the struggles of a patient going under I never saw a patient move, and none of the surgeons ever had to ask to have the abdominal muscles relaxed seemed to bother them The peritoneum was pulled on Did the patient strain and half come round? Not a bit. He lay like a log Yet I could not discover that their anæsthetic mortality was higher than anyone else's quite expect that if a patient did move during an operation that nurse would get the sack

The operations finished at about one o'clock, and we

all went back to our hotel for lunch

In the afternoon the Mayos attend at the "office" This is a soit of out patient department in the middle of the town

During the morning the new cases have been seen by the assistants Let us follow the career of a patient from the moment of his arrival. He first sees the business manager, who investigates his circumstances I fancy that man could give points to any of Lloyd George's inquisitors I was told that the patient has to pay a fee which is equal to 10 per cent of his average income for the last three years I will not youch for the truth of this I rather fancy that the Mayo brothers are as generous as they are successful. I heard a story of an old farmer who had mortgaged his farm for \$700 to pay the fee for his operation. This came to the ear of the Mayos when he had returned home They sent him back his money, and expressed a hope that he would at once release his farm of the mortgage And many others to the same effect.

That done, his history is taken and a most complete examination is made His urine is tested completely, and his blood counted A Wassermann reaction is done
If the case is abdominal, he is given a test breakfast at
7 A M the next morning If, he has ever had the
slightest symptom pointing to urinary trouble, not only is the bladder cystoscoped, but the weters are catheterized, a 15 per cent solution of collargol is injected into the catheters, and a skiagram (pyelograph) taken, which gives a picture of the whole upper urmary apparatus All these examinations are made by special men, whose work is confined to that one thing "

Not in the land of the Almighty dollar is the commercial side of surgery neglected quote the following figures from Mi Back's The total is startling, but a man of William Mayo's calibie would have made more ın busıness

Altogether a wonderful institooshun features it resembles any of our London hospitals In its main There is the hospital with some 300 beds, the "office," which corresponds to our out patient department, with

laboratories, X-ray rooms, etc., complete.

What are the points of difference? (1) Every patient who comes in is a paying one, according to his means I calculated that if they do thirty major operations on each of the 300 working days of the year at an average fee of \$250 (£50) their gross means is £450,000 per annum. It is staggering (2) The compared to the staggering (2) The compared to the staggering (3) The compared to the staggering (4) The compared to the staggering (5) The compared to the staggering (6) The compared to the staggering (7) The compared to the staggering (8) The compared to the staggering (8) The compared to the staggering (8) The compared to the staggering (8) The compared to the staggering (8) The compared to the staggering (9) The compared to the staggering (10) the st per annum It is staggering (2) The organization is as perfect as can be In a hospital with 320 beds they deal with 9,000 cases in a year The average stay of a patient is a little over ten days this because they use all the hotels in the town as convalescent homes (3) The systematic scientific They are able to do examination of each patient is admirably complete There is nothing casual, nothing haphazard in their methods (4) Specialization is carried to an extreme

degree Each man does one branch of the work only This may destroy his soul (imagine a year spent examining four or five thousand test breakfasts '), but it makes for unusual efficience (5) The whole staff work together with a harmony that I have not seen elsewhere This is due to the personality of William He is one of the world's great organizers Like Napoleon, he has the power of inspiring his men, of making them do then very best for him. When they of making them do then very best for him. When they talk of him then very tone is reverent, there is no other word for it. I can imagine Ney and Soult talking of the Little Corporal in that voice. Whatever line he had chosen to take up he would have come out top dog, newspapers, railways, banking, trust companies—it would have been the same Har he chosen politics, he would by now have been President of the United States

A great man
'It nevel can happen again' Mi Shaw has said it William Mayos are not often boin in our profession When William Mayo goes the glory of Rochester, Min

nesota, will go with him?

#### DIAGNOSIS OF DENGUE

THE recent discussion at the Asiatic Society shows the difficulty of arriving at a decision as to the nature of the minor fevers recently prevalent in India without, as Lienterant-Colonel L Rogers pointed out, a pathological basis. Our ideas of dengue have been derived from text-book descriptions which were based on experiences of former epidemics, but if more than one fever is now confused with dengue the same may well have been the case when the accounts were written on which text-book descriptions were based

The following abstract of a recent description of dengue by M Beboul is taken from Grall and Clarac's Traite Practique de Pathologie Evotique, Vol III, the great French treatise on tropical diseases (for the translation we are indebted to the Bulletin (Vol 11 3) of the Yellow Fever Bureau which admirably sums up all that is written from time to time on yellow fever, dengue and pappataci fevei) -

A historical review shows that dengue was first observed in Africa and Asia in 1779, in the following vear its occurrence was noted in Philadelphia, and four years later outbreaks were reported from Spain demics occurred in many different places during the following century, notably in Asia and Africa, and two principal foci are believed to have existed, one in India and the other in Central America Europe has but rarely been invaded, and then only the Mediterra

Dengue has the tendency to appear in epidemic form, and individuals of all races, ages and classes are attacked It is a tropical disease, and invades the temperate zone only during the warm season. It is rarely observed at very high altitudes. Ships are frequently infected, and often serve as a means of transport of the infection

from one place to another

The simultaneous occurrence of dengue and of some epizootic disease has repeatedly been observed popular belief in America that the same disease prevails there in cattle, and in India both cattle and horses have been reported infected. At the onset of the epidemic in Cadiz, in 1788, a disease was observed among rats and mice, and a considerable mortality was noticed in birds during an outbreak in Senegal Experimental transmis sion to animals, however, has not been successful

The author does not believe in Giaham's observation on an intracorpuscular parasite, and does not consider Graham's, and Ashburn and Craig's experiments as conclusive proofs of the transmission by means of Culci jatigans, although this mode of transmission is regard ed as the most probable The hypothesis is put forward that the pathogenic agent of dengue fever is filterable and invisible, and analogous to the viruses which pro bably produce the eruptive fevers The presence of leucopenia with relative increase of mononuclears and lymphocytes would seem to indicate that the germ is of protozoal nature

In the general description stress is laid upon the gastro intestinal symptoms, of which anorexia is the most pronounced Articular and muscular pains are constant, but then intensity varied considerably in the diffierent epidemics The small articulations are affected first, and later on frequently the larger ones. Sometimes the joints are red and swollen, and tender on pressure, but more frequently no inflammatory signs are observed The most acute pain often corresponds to the insertion of tendons and to the bones. The suddenness and acuteness of the muscular pains are emphasized

Distinction is made between initial and terminal rash, but it is admitted that the initial rash is often overlook ed, particularly in patients with a dark skin, although careful examination will always neveal its presence The terminal tash is considered to be more constant and more marked, and therefore of greater importance for

the diagnosis than the initial rash

The temperature reaches often 395°C or 405°C in the first period of the disease, and remains generally slightly elevated during the second period, the terminal rise is, as a rule, not so high as the initial one Exceptionally, subnormal temperatures may be observed in the second

The protean character of dengue is exaggerated by the fact that, during an outbreak of dengue, there is a tendency to call kinds of febrile affections by this name.

The author agrees with earlier writers in emphasizing the prolonged convalescence, prolonged in particular when compared with the short duration of the disease

If a patient has been suffering from some local dis order, this disorder is apt to develop with renewed force during and after an attack of dengue The nervous system is particularly liable to become affected

The existence of face immunity is not accepted Dengue seems not to confer any considerable degree of immunity, though repeated attacks are somewhat rare

The differential diagnosis with yellow fever, relapsing fever, climatic fever, malaria, eruptive fevers, influenza, rheumatic fever, and Malta fever, is discussed in some The most important characteristics of dengue are the course of the temperature, the initial and terminal rashes, and the presence of acute and intense articular pains without corresponding objective symptoms

The prognosis is invariably good, except in infants and old people, and where there is some pre existing or complicating disease Dengue differs from yellow fever in attacking old residents of tropical countries more

severely than new comers

Symptomatic treatment is the only one indicated, and consists essentially in the use of purgatives, sedatives, Careful dietetic and hygienic manage and cardio tonics ment is essential.

Prophylactic measures are difficult, because of the great prevalence in many places of the supposed trans mitter, Culer fatigans

The campaign against dengue should be conducted on lines similar to those followed in the campaigns against yellow fever and malaria.

#### RIFLE WOUNDS IN THE BALKAN WAR.

THE following letter on wounds in the Balkan wan is from a correspondent of the Journal A M Assoc at Budapest.

"Dr Bertsalan Widder, a Hungarian surgeon, who was sent to the Balkan battlefield by the Hungarian Surgical Society to study war surgery, recently read a

paper before the Hungarian Surgical Society on this subject He says that the bullets of the Turkish rifles are pointed, and thus they are very humane They either kill the soldier, or run through the body so that the wounds are curable. He has seen many soldiers dismissed from the hospitals entirely cured, though wounded on arm, leg, abdomen, etc In one patient a bullet entered through the right frontal bone and went out 6 cm from the entrance in the temporal region The fragment of bone pressed on the corresponding The fragment of bone pressed on the corresponding part of the brain, leaving behind paralysis of the left aim. In another instance of nerve-lesion the bullet entered the left side of the neck and went out through the right shoulder. The paralysis and painfulness of the right arm and hand are existing yet. In the same hospital there is a patient in whom the right kidney was shot through and the bullet is imbedded in the left. was shot through and the bullet is imbedded in the left hip-bone. The patient feels tolerably well, the urine was bloody, but is not so now. In one case a soldier, while lying prone, was shot from a distance of 40 meters. The bullet entered at the top of the head and massed through the lying and hard walks. passed through the brain and hard palate, then it pierced its way through the bottom of the mouth and muscles of the neck. The bullet was palpable down ward from the armpit under the third rib, and could be removed with ease. The patient was in bed for twenty six days and left the hospital cured

Dr Grunfeld, an Austrian, had altogether seventy wounded In one of his patients the right femoral artery and vein were shot through Before this soldier was carried to the hospital the leg had gangrenous, so that it had to be amputated From so many thousands of patients only eight or ten amputations had to be performed In Grunfeld's seventy cases there were thirty-six in which the bullet pierced only soft parts and the patients were entirely cured, in the eighteen cases there were bone injuries. The remaining cases were still more serious, in four cases joints were crushed The latter injuries were caused by shrapnel, three out of the seventy cases healed without any dressing, an injury of the abdominal wall, caused by cannon shot, resulted in peritonitis, in one case injury of the popliteal vessels necessitated amputation In this case an old rifle had been used

Thus most of the injuries were caused by bullets and shrapnel The small number of mjunes caused by cannon shows that those hit by cannon balls were killed The injuries caused by bullets are favourable from the point of view of healing, even if they are not dressed properly Bayonet injuries were not seen, if, there were any, they must have been mortal The shrapnel injuries were terrible Shrapnel causes a large wound and the missiles carry with them flesh or bones, or whatever they encounter, leaving behind them a wide field for infection The shrapnel falls from the air like soda water from a siphon The injured soldiers and officers have told terrible things about shrapnel

The Spitzgeschoss (pointed bullets) did little harm even the brain. This is shown by the fact that in the wards every fourth or fifth patient is injured in the head, and bullets have penetrated the brain. These patients are

Dr Widder saw one patient, who did not sleep or talk, but only sat and stared before him The bullet had penetrated the right lobe of the brain This patient

Injuries to the lungs were relatively of benign charac-It was unfortunate that the Roentgen apparatus of the Turks was not in condition to be of any service"

# THE BURMA ASYLUMS REPORT FOR 1912

Ir is satisfactory to hear that the long delayed question of constructing a new Lunatic Asylum in Burma has made progress, and Colonel Evans, IMS, the Inspector-General of Civil Hospitals, Burma, states that the site has been acquired and the plans are under discussion

The most interesting portion of the report is the statement as to ætiological factor and associated conditions in insane patients. Of the 226 patients admitted 11 had an insane heredity, 1 an epileptic heredity, 5 congenital mental defect, 23 had previous attacks, in 2 the predisposing causes is given as long sight, 5 were due to critical periods, puberty climatic and senility 4 were puerperal, 31 due to mental stress, 22 to privation or malnutrition, 3 over-exertion, 1 sexual excess, 15 alcohol, 5 opium, 2 cocaine, 1 ganja, 7 "fever," 1 tuberculosis, 2 syphilis, 1 other toxins, 3 injuries, 2 operations, 8 epilepsy, 11 "other general affection, ey diabetes," and in 54 the history was defective

Of those admitted during the year 8 were idiots, 5 puerperal, 8 epileptic, and 9 alcoholic mania, 95 were other forms of mania, 20 were melancholics, 12 were cases of anergic mental stupoi, I delusional mental stupoi, 7 delusional insanity

Capt W S J Shiw, Major W H Cox, DSO, IM.S, and Dr H Wells, were the Medical Officers in charge during the year

### AN INTERNATIONAL ABSTRACT OF SURGERY

THE February, number of "Surgery, Gynecolooy and Obstetnes" (Vol. XVI, No. 2). is a new departure in Medical Journalism, in that it gives no less than 128 pages of an abstract of surgery in all its branches, and the editors have entered into a working alliance with the leading German and French Surgical Journals for an exchange of material, and they will in future publish complete abstracts of all that is of interest "in the surgery of the world" It is suggested that it may be necessary to divide up this huge monthly into three parts In whatever torm it appears it is colossal and is a wonderful feat of editing The editorial staff is an enormous one and contains the names of surgeons from all parts of the world including India The Journal is very elaborately ıllustrated We commend it to the notice of all surgeons in India

WE have received the report of the South Travancore Medical Mission for 1912, which is iun by Di J Davidson, Di O H Bulloch, and Di S H. Pugh, as our columns here testified there is much good medical and surgical work done in the hospitals of this mission Major operations amounted to 339, and included 78 cases of cancer of the face, etc, due largely it is considered to betelnut chewing We have alrealy published (Sept 1912) a series of cases of uterine prolapse Typhoid is treated by acetozone, and it is said that the fashionable aspirin is good in pneumonia (8 grain doses) There were 20 cataract operations out of 23 eye operations and 15 laparotomies

Subscriptions from old Glasgow men are mysted by Di J H Teacher (Royal Infirmary, Glasgow), for subscriptions to the Glasgow Lister Ward and Museum in the Royal Infirmity where Lord Lister first put into practice the principles of autiseptic surgery

The April number of the ever useful Journal The Prescriber has a particularly complete article on Hormone Therapy (Price, 1s only Prescriber Office, 137, George Street, Edinburgh

WE understand that Lt-Colonel D G Crawford, IMS (retd), is now busy at his history of the I MS. He has written all the chapters and is now well through the revising of the book. We may look forward to it early next cold weather

Major O'Gorman Lalor, IMS, sent us (1st May) an account of discovery made by him in connection with Blackwater fever in Burma. The new mode of malarial infection claimed by him to have been now discovered causes intense blood destruction, and consequent hæmoglobinuma. We hope to publish soon a full account of Major Lalor's work on this subject

CAPT A W OVERBECK-WRIGHT, IMS, Agra, has sent us (dated 29th April 1913), a description of new method of quantitatively estimating the chlorides in the blood, which unfortunately we are not able to publish in the present number

Consequent on the abolition of the appointment of Chief Medical Officer, Rapputana, as a whole-time one, the Secretary of State has now sanctioned the grant of Rs 250 a month to the Civil Surgeon, Almer who carries on the duties as collateral charge

# Reviews.

Birch's Management of Children in India—
Fifth Edition Edited by LT-Col C R M
GREEN, FRCS, and CAPT GREEN ARMYTAGE,
IMS Calcutta Thacker, Spink & Co, 1913

We are very glad to welcome another and up-to-date edition of Brigh's Children in India We well remember our first child patient in India and how the mother quoted fluently Brigh's book We went home and promptly wired to Calcutta for a copy of this most useful work. The new edition is edited by Lt-Col C R M Green, FRCS, and Capt V B Green-Armytage, MD, I.MS, and forms a very reliable and thoroughly practical guide to the voung physician and to the mother in India. No house in the mofussil where there are children should be without this

most useful book. All medical men are required to know the book, because it is so well known to their patient's families

It is not necessary to recapitulate the contents of so well known a book. The new edition has been very largely re-written and revised space has been wisely given to general hygiene and the prevention of disease Artificial feeding is fully discussed and the important section on bowel disease and on fever has been re-written The authors have kept to the original idea of the first author of the book, Di Goodeve, namely, to give trustworthy instruction to the parent to deal with the emergencies incidental to child life We think that this point of view should be even more strongly borne in mind in the next inevitable edition, for if we have a criticism to offer it is that the present chapters tend to be in places a bit too advanced for the layman or rather for the mother

Lt-Col Crawford gives an interesting historical note on the origin and progress of this ever successful and reliable volume, and we are confident that the new edition will keep up the reputation of the book for practical usefulness in India and the tropics generally.

Sclero corneal Trephining.—By Lt-Col R H

ELLIOT, INS, FRCS I ndon The Ophthal
moscope Piess Pince 7s 6d net

This little volume will be much sought after in India, in it Lt-Col Elliot sums up the present position of the operation to which he gives the name of sclero-corneal trephining, and which is an advance on Lagrange's operation and now rightly known as Elliot's operation because not only did he independently use the trephine, but he also has closely studied and explained the technique of the operation.

Much of the book is taken up with work formerly published in *The Ophthalmoscope*, and two useful introductory chapters are by Mi S Stephenson and Mi A J Ballintyne

Elliot appears to employ sclero-corneal trephining on all kinds of primary glaucoma

He, however, also uses it in chronic cases and his views on cases of glaucoma due to the presence of a cataractous lens are very important. His remarks on the value of prophylactic trephining of the as yet unaffected eye are of great value.

The account of the technique is very interesting, viz, the antiseptic methods, the use of dry sterilization, the mouth masks, etc

The method of keeping the records of such cases at the Madras clinic is very complete and thorough and with the mass of material available there they must soon become of great value

We can strongly recommend this book to our readers who want to understand what Lt-Col Elliot claims for the operation. All ophthalmic surgeons will agree that his results are distinctly encouraging

Medical Annual, 1913 —Bustol J Wright & Sons, Ld

THE 31st year of this well-known annual is better than ever and several new features have Every article is up-to-date and been introduced concise, and the list of contributors is as guarantee of good work The volume is a clearly printed and as well illustrated as ever, but is printed on fine thin paper, so that the bulk of the book is The general index is particularly well reduced done, and there are no less than 42 plates and 200 other illustrations A useful glossary of new terms has been added The report on the apeutic progress is by Di F J Charteris and is admirable and useful Di Hugh Thompson admirable and useful writes of the intracapsular operation for cataract and quantly remails that if this "Indian" operation is to be the operation of election "most ophthalmologists will teel that they may as well retire" He admits that the "usual operation does not give such a brilliant result as a wholly successful intracapsular extraction, jet it is safer on the whole " Under goitre Major McCarrison's work is detailed. There is a good article on glaucoma and the various tuberculosis articles Lt-Col L Rogers, IMS, writes are up-to-date on the various tropical diseases, and his articles give good accounts of the ever-increasing liter-The Public Health ature of these complaints Section is excellent and includes medico-legal Most of the recent new appliances are well described, and the reader in India will find the list of new books useful

The whole volume is well worth the attention of practitioners in India

# On the Biology of Tumours -C. Mansell Moullin

The author has published in book-form the Bradshaw Lecture, which was delivered by him at the Royal College of Surgeons on December 5th, 1912. In the first place, he shows that there is no natural line between simple and malignant growths, tumours are common to all animals, there is no proof that they are due to parasites, they originate as buds from tissues which continue to grow because the force that restrains them inborn power of growth has ceased to act. In the next place, he deals with the division of the primitive organism into germ and somatic elements and the relations which spring up between these elements.

He goes on to discuss the question of the kinds of tumour, and states there are two (1) those which spring from germ cells and possess a more or less complete individuality, and (2) those which spring from somatic cells and are due to the scape from control of what remains to them of their primitive power of growth.

Finally he deals with such problems as, tumous being caused by the airest of evolution, the inheritance of tumours, the simultaneous growth of tumours from homologous tissues, the

analogy of the airest of development of organs, and the possibility of the cure of tumouis

The subject is considered in a broad and philosophic spirit

Practice of Gynæcology.—By WILLIAM EASTERLY ASHTON, MD, LLD Fifth Edition 1,050 illus W B Saunders Co, 1912 Pp. 1059

THE fact, that this is the 5th edition of a book which was first published in 1905, speaks for the popularity in which it is held, and for the want it has evidently supplied Before criticising this edition it would be well to point that, in it many additions have been made and alterations For instance, the recent advances undertaken in the diagnosis and treatment of syphilis have naturally necessitated a reconsideration, as also the progress made in the domain of electro-The latest work on internal secretherapeutics tions has entailed a thorough revision of the chapters on the Physiology of Puberty, Ovulation, Menstruation and the Menopause so as to enable the author to conform to the views now generally held on the importance of the "Hoimone" of the ovalles

In our opinion the book is somewhat cumbersome and the style monotonous. Spelling such as center, pipet, edema, shriveled, papillas, maneuver, etc., might be inclined to upset those unaccustomed to the reading of American books.

From the frequent repetitions met with and those often on adjacent pages it would appear that the author did not intend the various articles in his book to lack the force derived from "saepe cadendo." We read on pages 254, 268, 282 & 289 — "A cystocele is always situated on the anterior wall of the vagina, it is increased in size and becomes tense upon caughing or straining, it disappears on pressure, it is tense and elastic when the bladder is full, and only the vaginal and bladder walls intervene between the finger in the vagina and a sound in the bladder." It can be easily imagined that places, where whole pages are repeated, might form somewhat monotonous reading

Surely it is superfluous to mention, as is mentioned on page 204, why chancioids are observed more frequently among the lower than the higher class of prostitutes

The writer shows some inconsistency when on page 369 in the treatment of chronic inversion of the uterus he condemns all cutting operations, and yet on page 371 he goes on to describe one cutting operation as "very simple and usually successful"

We are not in agreement with the author when he states that hydronephrosis is caused by a complete obstruction, vide page 539. It has always been our opinion that an incomplete and intermittent obstruction was the cause of that condition

Although, as stated before, we have found the reading somewhat wearisome, it is our duty to acknowledge that portions of the book are

excellent As regards operations the writer has not gone in for multiplicity of methods, and that in our opinion is a step in the right direction has simply described what he, from his perience, has found to be the best operation for each condition It is a pity, however, that no mention is made of Weitherm's operation operations noted the descriptions are all that could be desired and illustrated, as each step is, by excellent diagrams, there is no difficulty in understanding what has to be done and how

Not only are full lists of all the instruments required for each operation given but also with each list there is actually a picture of each

In the chapter on microscopical and bacteriological examinations the practitioner will find precise instructions how to obtain and preserve secretions and tissues The conclusions drawn in the following chapter on the significance of leucocytosis are valuable, but, as the writer states. the blood picture and clinical picture to be of value must be considered together

The chapter on diet is very good, and there one learns how to prepare various invalid dishes The directions as to peptonising milk, however, are not the ones we usually carry out, and are certainly not the ones to be followed in India

The articles on Salpingitis, Ovarian Cysts, and Chorord Epithelioma are excellent, as also are the chapters on Sterrlity and Conservative operations

on the Uterme Appendages

The infinite variety of names applied Choroid Epithelioma is a sign that the true nature and origin of that disease still belongs to the "arcana" of pathology

Gelhoin's method of treating inoperable cancer of the cervix with acetone has mented a description, but we were under the impression that a tampon soaked in acetone was actually packed

into the cavity left after curettige

Errors are few and far between, the following being the only ones noted by us after a careful perusal of the volume -On page 267, a hyphen might with advantage be inserted between vesico and uterine, on page 319, in the text Fig 331 should read Fig 335, on page 368, both hands in the illustration are left hands whereas the outer hand should be the right, on page 674, Pereureteral is written in place of Peninteteral, on page 773 (see Fig 204, p 228), should be (see Fig 204, p 227)

So carefully has the author dwelt on all the little points of pie and post-operative technic, which count in the successful issue of an operation, that we take it upon ourselves to suggest to him that in future editions mention might be made of the temperature of the salmes to be used for

enter oclysis

In conclusion, may we state that, although in places the reading is somewhat heavy and one's interest likely to flag, we can heartily recommend the book to the profession if only for the interest some of the chapters are likely to awaken in its

Within its covers much will be found readers which will prove useful

Snake Bite and its Scientific Treatment -By F. W Fitzsinons, FZs Longmans Green &

WE recently noticed Mr Fitzsimons' book on the Snakes of S Africa, and this pamphlet gives a full and popular account of the proper treatment of snake-bite. He recognises only two scientific treatments, permanganate of potash (a là L Rogers), which he admits is an excellent "first-aid remedy," and the use of antivenomous First-aid treatment consists is ligature, scarification of the bitten spot and use of permanganate of potash Secondary treatment is the use of antivenomous serum and the method of using this is well illustrated

Dental Anæsthetics -- By W. E ALDLESON, M D Bristol John Wright and Sons, 1912

This is the second edition of a very useful little It has been thoroughly revised and new paragraphs inserted, dealing with the continuous administration of nitrous oxide and the simultaneous exhibition of nitious oxide and oxygen under the heading analgesia Mi J Bolam has a very useful chapter on what used to be called "local anæsthesia," both by "freezing the gum and by the infiltration method by endermic injection of drugs such as cocain and its substitutes The technique of such injections is clearly given, and The little book is certainly the contraindications useful and can be recommended

Elementary Hygiene and Sanitation with reference to the Tropics -By W T PROUT, CMG, MD (Medical Adviser to the Colonial Office) Third Edition London J & A Church hill, 1913 Price, 2s 6d net

This is an admirable little book, and in spite of many similar books on hygiene in the tropics it still commands a market

It is written from a popular point of view, and in a very clear and easy manner deals with the elements of sanitation in tropical countries is written in lecture form as originally delivered The third edition has been revised and is up to date, eg, typhoid may be conveyed in three ways by the "three fs"—"Fingers, food and flies" The book is illustrated and neatly and clearly printed

The Surgical Clinics of John B Murphy, M D Volume 1, Number 5—Published bimonthly—By W B SAUNDERS Co, Philadelphia and London 35s per annum

Ir is only possible to comment as favourably on this number as on the previous ones chief subjects of the climes this month are cases cholecystitis, gastioduodenal ulcei, a very interesting one of clonic adhesions simulating appendicitis and also one of a traumatic lesion of the brain together with many others

The subscribers to this publication get very

full value for their money

### SPECIAL ARTICLES

#### FREE DISPENSARIES FOR POOR CHILDREN

During a recent visit to Egypt I took the opportunity of seeing the working of some of these dispensaires in Carro and the Provinces The first to be started on regular lines was at

Munich some six years ago

About £4,000 was collected locally and a small building taken where the attendance and results were so good that it was decided to construct a special building for the purpose, a rough plan of which is attached The ground floor is given up to the work of the dispensary, the top being used as a residence by the mation and English sister The building cost about £2,000 and appeared to It is self-contained with its own me perfect water-supply, heating management and conser-The entrance is at M As the mothers with their children arrive they receive tickets with consecutive numbers and take their places in the central hall, or if the case be considered infectious, it is kept in the special waiting-100m C Opening off this hall are a bath-room with lavatory, a kitchen, and a store 100m water is laid on from the kitchen, where it is heated by means of an ordinary range All children that require washing or bothing rie taken in turn into the bath-room, and an ocular demonstration given to the mother as to how she should do this In practice it has been found that, after a very few visits, the mothers bring then children clean in person and dress Patients are brought in batches past the screen A B into the smaller hall Z. The matron sits inside the door of room D and sees each child, she takes its name, makes a simple diagnosis if possible, and passes it on if an eye case, to be treated by the English sister in the eye room. If a skin case or wound, to be treated by one of the Native assistants of herself in foom D. Serious cases, which she thinks should be seen by a doctor, wait in 100m F Room G is a dispensary where a trained compounder makes up the various drugs and lotions, attending daily for two hours for this purpose All skin cases are treated in a special part of room D by one of the Native assistants In the Abdeen dispensary in Cano there is a third diessing room for these cases

The building is well ventilated, there being a through draught through the halls

One of the main objects of the dispensary is the teaching of the mothers great stress is laid on demonstrations as to the use of the bath-room which is well equipped with two babies' baths, the matron herself showing the women how a

The separation of eye cases and skin cases from other cases is rigidly insisted on The mation and sister are specially trained and can carry out the various different methods of treatment

The staff consists of an English mation and English sister and three Native assistants.

The mation is entirely responsible for the whole working of the dispensary She must be a trained nuise with some experience particularly amongst natives, not too young, with plenty of tact and a good knowledge of the language The English sister under her confines herself to the eye cases which constitute some 45 to 50 per cent of the whole attendance some difficulty was experienced in obtaining Native women to be trained to act as assistants Now only married women are taken on for These live near the dispensary and tiamng become quite keen on the work

A paid compounder attends daily

One of the doctors from the Government Hospital altends daily to see any serious cases which the mation may have kept for his opinion, his services being given free, and two or more doctors attending by turns. Now that these dispensaries are to be taken over by the Provincial Councils the doctors will be paid the doctor considers it necessary he takes the little patient into the Government Hospital or Eye Hospital for general treatment or operation

Children from birth to 12 years old are eligible for treatment, and when possible must be brought by their own mothers. The daily attendance is limited to 100, as it has been found that the mation cannot personally see a larger number, and supervise their treatment. In the summer when eye cases are more numerous this rule cannot be rigidly adhered to

The dispensary is open from 7 to 12-30

From the very start the attendance has been good, 2,300 new cases were treated in 1912, and about 45,000 attendances were recorded

Eye disease is very prevalent, indeed one of the English eye inspectors told me that 95 per cent of the population suffered from some complaint of the eyes more or less severe In India fortunately things are not so bad, though eye disease is common

Most of these defects occur in childhood, hence then early treatment in these dispensaries will lead to a greater improvement in the effectiveness of the using generation It has been found that the mothers will bring then children more readily to the Special Dispensity than to the General Hospital Doubtless this would be found to be the case in India too

In the case of general diseases such as pneumonia, the mothers now bring their babies in time to benefit from treatment whereas formerly they only brought them when at death's door, a common Tiling in both East and West

The present boolding cost £2,000 been constructed on the most up-to-date lines, with polished stone floors, glazed earthenware sinks, basins, bath, etc

Each 100m is well lighted Hot and cold nater are laid on Conservancy is arranged for

by means of a septic tank and filter in the grounds of the dispensary

The annual cost at Minieh is about £600, and has up to date been raised by local subscriptions

The Minieh Model has been adopted for the whole of Egypt, and a dispensity of this kind is to be elected in each Mudnich (head-quarters) town, it will be managed by the Provincial Council with the Mudii (Provincial Governor) as Chan man One or two travelling dispensaries each with an English sister in charge will probably be attached to each district

I think the scheme might easily be adapted

to India

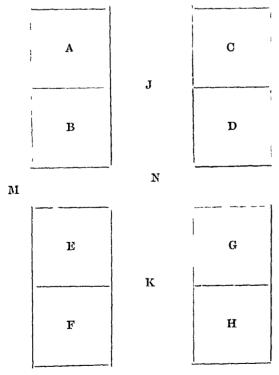
The two great difficulties are to persuade the mothers to bring their own children, and to bring them before the cases are hopeless

The dispensary must be central, and entirely distinct and away from the Civil Hospital Perhaps it could be run in conjunction with the Elgin of Dufferin Hospital, where one exists

The mation must be entirely responsible, and she must be capable and endowed with tact, as on her depends the whole success of the scheme

The Civil Surgeon or the Lady Doctor could attend daily for a short time to advise on or treat serious cases

A beginning might be made on small lines as Minieh and the extent of the success of otherwise of the scheme gauged at the end of the first year



A-Compounding 100m B-Waiting room

E—Infectious cases waiting 100m F—Store 100m

C-Diessing 100m

D-Eye room
G-Baths and lavatory
H-Kitchen

J—Hall K—Hall

-Screen

M-Entrance

W J POWELL

II

### "MENTAL DERANGEMENTS IN INDIA"

#### A CRITICISM (COMMUNICALLD)

Seventeen years ago Dr Macpherson maintained the toxic basis of all insanity, and ten years later, another Scotsman, Dr Louis Bruce, in his "Studies in Clinical Psychiatry," bringing the results of much careful observation and persevering industry to bear on the subject of mental disorder, elaborated a definite classification of mental diseases, founded on the same basic idea Workers in the Scottish Lunatic Asylums, amongst whom the names of Ford Robertson, Macrae, Munhead, Macdonald, and Mackenzie suggest themselves, forming what may be called the "Scottish School" of psychiatry, still further elaborated the toxic and microbal theories of mental disorder In "Mental Derangements in India," Captain Overbeck-Wright, IMS, carries these views a step farther, and lays it down that the only non-toxic forms of mental disorder are those due to exhaustion, and to gross muny to the substance of the

There is much that is attractive in this view of the causation of mental disorder, especially to a certain insular type of mind, the type which works in water-tight compartments Psychology, normal and abnormal, that new science which is forcing its wav even into the Universities of Oxford and Cambridge, -is ruled off the page as n relevant The alienist who follows Captain Overbeck-Wright has no use for the phantasmagonia of "complexes," "dissociation," "conversion," or "transference" of "affect," nor need he worry about the "synthesis of a personality," the "deficiency in the function of the real," the "retraction of the field of consciousness," or the "splitting" of the same. The work of philosophers with of the same The work of philosophers with then heads in the clouds, propounding new theories of "epi-phenomenalism," "vitalism," "parallelism," "humanism," "oreative evolution," what they will, have no interest for him, he can afford to ignore such unsubstantial, -not to say suspicious—Will O' the Wisps Aimed with his microscope, having available for his use a bacteriological and chemical laboratory, dealing in nothing which cannot be weighed in a chemical balance, and measured, if not with a foot rule, at least with a micron scale, he hopes to solve the uddle of disordered mentality to minister successfully to a mind diseased, and "raze out the written troubles of the brain"

Nevertheless, there are many who have doubtless given the matter some thought, and who are not as sure of this as is the author of "Mental Derangements in India"

When one notes the enthusiasm with which the work of Sigmund Freud, Jung, Janet and Snyder,—to mention only a few of the pioneers of the new psychology,—has been received all over the world, and the edifice that European and American alienists are rearing upon the foundation laid by them, one cannot help thinking that ifter all there may have been some truth in the words written by Dr Mercier eleven years ago —

"When the student of medicine passes to the study of Insanity, he crosses a scientific frontier, and enters an entirely new province of knowledge Hitherto his purview has been limited to processes that go on within the body, and whatever references he had to make beyond that field were indirect and of secondary His position towards his patient is the position of the shiprwight and the engineer towards the When the vessel on which they are engaged. When the student oversteps the bounds of medicine to enter upon the study of insanity, he leaves the engine 100m for the quarter deck. He is no longer directly concerned with the integrity of the structure, or the efficiency of the engines. His function is now to set the ship's course, to note the way she comports herself in wind and weather, to study charts and tides, stars and clouds, to watch the barometer and to sound the lead, and generally to relinquish the observation of the ship itself and take up that of her relation to the world in which she moves'

Notwithstanding the assertion of Captain Overbeck-Wright to the contrary, there are many who hold the belief that much mental disorder is psychical in origin, and, that when the microscope and the test-tube and the petri-dish have yielded up their last secret, we shall doubtless know much of the accompanying phenomena, but comparatively little of its causation. These excellent machines may tell us much of the "how," but never all of the "why"

That many mental disorders are toxemic is, of course, a truism. We are told that in perhaps the majority of cases met with in lunatic asylums, the mental disorder is a symptom of the bodily disease, which may be a general toxemia, a gross brain lesion, a failure of normal development, or a drug poisoning. But over and above all these, there remain the psychoses, the cases of psychical traumata, and psychical perversion, the phenomena of disordered affectivity, the cases in which the physical disorder, if any such exists, is secondary to the psychical,—is the result, and not the cause. For in many cases which exhibit physical symptoms, these latter are secondary.

Even Sii Thomas Clouston, one of Captain Overbeck-Wright's authorities, in his latest published writing on the matter (1) admits that "Specific and Technical Insanity" results from mental and moral causes in about one-fourth of all the cases

In this connexion, it must be remembered, that many psychoses may exist for years, yet never drag their victim across that vague

boundary which arbitrarily divides the sane from the insane, the position of which varies with the standard of civilisation and conduct of the society in which the patient moves, and which position must always remain, to some extent, a matter rather of public opinion than of absolute scientific fact

No writer on mental disorder, in India or elsewhere, can now afford to ignore the work that has been, and is being done, on normal and morbid psychology, no more than a writer on surgery can ignore asepsis, or one on medicine vaccino-therapy. But one looks in vain through the index of "Mental Derangements in India" for the terms "affect," "Psychic trauma," "Psycho-analysis," Psycho-therapy," and scans its pages without success for a reference to the work of Freud, Jung, Janet, Dubois, Sidis, Smeux, Forel, or Tanzi And, of British alienists, Stoddart is not even mentioned! It would seem, indeed, as if the book were written from a definite ex parte standpoint, and a propagandist point of view

On the other hand, there is much that is good in the book, and some of the best is new The accounts of the physical symptoms, the painstaking blood counts, the careful observations on the changes in the blood-pressure, are all excel-The shrewd remark regarding the grossly exaggerated notions held concerning the influence of opium in producing mental disease, is worthy of the notice of many who are not alienists, both in India and in England, and the eradication of the old delusion that Indians do not suffer from paralytic dementia, is another step towards the light We are with Captain Overbeck-Wright, heart and soul, in his insistence on the necessity for more earnest and patient study of the pathology and bacteriology of mental disease But we join issue with him on the exclusion of the psychical cause, and the ignoring of the all powerful influence of "affect"

Long ago Hume wrote that "Reason both is, and ought to be, the slave of the passions" No statement has ever been more misunderstood, as Schiller says "Every scientist from Hume to James has taken it as a personal insult"

But now, thanks to James, Bergson and others, it is universally admitted that the statement contains one of the greatest truths ever enunciated by living man. Hegel indeed implied it all, when he said that "Great tragedies result, not from the conflict between Right and Wrong, but from the conflict between Right and Right." More cynical than Hume, he gave less offence There are different ways of calling a spade a spade

The all powerful influence of "affect" over our reason, our judgment, our will, as well as its obvious affinity with "Instinct," and hence its close connexion with the most fundimental processes of life, lead us to believe that it is by

the study of affect and instinct we may hope eventually to solve the problem of matter and mind. In this connexion, one cannot help thinking that the psycho-physicists, in confining their attention so completely to the human consciousness and brain are beginning at the wrong end

Experimental methods might be employed with advantage lower down the biological scale It is easier to understand the phenomena of steam as a prime mover, from the examination of a Counish pumping engine, than sixteen-wheeled /articulated eight-cylinder American trans-continental locomotive usually wise to begin at the beginning to go right back to the organisms which "think" with then whole bodies—the amœba and the paramœcium, the first simple "Colonies," the ovum. the gastrula, and, for the matter of that, the We know how inadequate are the various "tropisms" of the mechanists, by which they attempt to explain away the vital manifestations of "instinct" of 'intelligence" in the unicellular organisms. In this way only may we hope to wheedle "instinct" into giving up her secret, and telling us not only what she knows, but how she knows

It is not likely that any of us shall live to see science demonstrate the essential unity, or the essential duality, according to our personal predilection) underlying psychology and physiology. But there is every reason to hope that some future generation of human beings will Nor need we wait for the advent of the "Superman"

Meanwhile, before that time arrives, a great battle will have to be fought. Already the shadows of the coming conflict are creeping round us—shadows of the war for supremacy between brology and physical science. In brology we include psychology, for that too is a science of the living

Physical science has heretofore appropriated to itself the supreme position in the hierarchy of All the other sciences exist by its In the words of MacDougal, "It claims to be the arbiter of the Possible and the Impossible," and its rule has been tyrannical and intolerant to a degree In the history of the world, social, political or religious, no greater example of intolerance can be found than that of mechanistic materialism, the favourite child of physical science, in the second and third quarters Its malign influence of the nineteenth century has by no means passed away, and is still felt, perhaps most severely of all places, at the present day, in the science and profession of medicine

But its time is near When the conflict takes place—as take place it must—for the mechanists will not capitulate without a struggle, we may confidently predict that biology will not come off second best

#### III

# HEALTH OF THE AMERICAN ARMY

THE report of the Surgeon-General, United States Army for the fiscal year ending 30th June 1912, is a document of very considerable interest to military medical officers. We, therefore, propose to make extracts from it on subjects of most general interest—

#### ADMISSION RATES

"Table No 74 shows that the admission rates for alcoholism, sphilis, genoriher, and chancroid were all much higher for the United States than for any other country. For typhoid fever the admission rate for our Army was C 80, as compared with the Japanese 5 17, Russian 5 6, Spanish 3 24, French 2 95, British 2 2, Austro Hungarian 1 3, Prussian 0 35, and Bavarian 0 21. The death rate for typhoid was 0 11 per 1,000 as compared with the Spanish 0 82, Russian 0 78, Japanese 0 55, French 0 47, British 0 28, Austro Hungarian 0 20, Bavarian 0 06, and Prussian 0 03. For malarial fever the rates for the United States were lower than for the British, Russian and Japanese, but higher than for the other countries in the table. The rate for dysentery for our army was higher than that for any other army except the British. For tuber culosis our rate was lower than that for the Spanish, French and Japanese, but higher than that for the other countries in the table.

It will be noticed that in these tables the figures for the American troops are for the year 1911, for the British and Austro Hungarian for the year 1910, and for the others included in the table for 1909"

The following note on the value of Antityphoid inoculation is of great importance —

It has been fairly demonstrated to the medical pro fession and the general public that the immunization of troops against typhoid fever by the typhoid prophylactic is a tholoughly practical measure for the prevention of the disease, and that its protective value is only second in importance to vaccination against small-pox. It will be noticed in the table on page 51 that in the entire Aimy for the year 1911 there were 70 cases of typhoid, 11 of which were in immunized persons. It was not possible to check up all of these 11 cases or to confirm the diagnosis in all of them by blood cultures There is a possibility that some of them may have been paratyphoid or fevers of undetermined origin. Since the beginning of the year 1912 each case as it is reported has been carefully investigated Surgeons are required to furnish a complete history of every case, giving in detail the methods used in arriving at the diagnosis. This office insists that in each case, if possible, the diagnosis be confirmed by a blood culture or by a culture from the feces or unne Since the Widal received the prophylactic and persons who have some time thereafter, it cannot be considered as positive evidence of the presence of typhoid fever in an immunized person. It is recognized that it is not possible in every case of typhoid fever to confirm the diagnosis by cul ures, and it is not the intention of this office to refuse to accept such a diagnosis when the clinical findings are clear It is believed, however, that in practically all of the cases of typhoid it should be possible to isolate the organisms from the blood, or from the unine or faces, at some time during the course of the

The United States Aimy is the only one in which this immunization against typhoid fever is mandatory. It is therefore especially desirable that true and accurate statistics should be obtained to determine as far as possible the efficiency of this measure.

On the question of the prevention of Venereal Di eases the following extracts show the trend

It is interesting to note to what extent the opinion prevails throughout the Army among the surgeons and post commanders that the men should be punished if they contract venereal disease, and if it can be proven that they have failed to avail themselves of proper protective measures Fifty-five surgeons in the United States expressed the opinion that men should be punished as outlined above and only two expressed an opinion contrary to this view Forty-one post commanders were in favour of some plan and eight were opposed

It is also interesting to note that 45 surgeons expressed an opinion in favour of stoppage of pay for officers and men while sick in hospital or quarters on account of energal diseases and none expressed an opinion opposed to this view Twenty-seven commanding officers were also in favour of this measure and only two opposed it. It may well be said that the opition in favour of punishment and of stoppage of

pay was almost unanimous

After a careful examination of the replies furnished to these questions it becomes evident that the majority of surgeons and commanding officers recognize that the hospital method is the one that will be found most There seems to be no doubt that the satisfactory Slee packet of the A & N tube or the torlet method, if properly used, will prevent venereal diseases in a large percentage of cases. The difficulty is, however, that soldiers cannot or will not properly use these nemedies. In addition, as stated above, there is no way of proving whether they have or have not used them in case they contract venereal disease

The Secretary of War, in his annual report for the vear 1911, made the following recommendation

The Surgeon General recommends the stoppage of pay for time lost on account of venereal diseases as one important step to be taken. This opinion is shared by a large number of officers of general and field rank who have given the matter careful consideration. I concur with this recommendation, and I urge that legislation be passed which will authorize the stoppage of pay of both officers and men during time of disability for active service caused by such diseases

In accordance with this recommendation a clause was embodied in the appropriation bill in the House of

Representatives as follows

Pay of enlisted men \* \* \* Provided (12) That no part of the appropriation in this act for the pay of officers and enlisted men chall be paid to any officer or enlisted man in active service for any period of time lost by him on account of diseases which are the result of his own intemperate use of drugs or alcoholic liquors or other misconduct

This clause was slightly changed in the Senate, to read as follows

Provided (12) That any officer or enlisted man in active service who shall be absent from duty on account of disease resulting from his own intemperate use of drugs or alcoholic liquors or other misconduct shall not receive pay for the period of such absence from any part of the appropriation in this act for the pay of officers of enlisted men, the time so absent and the cause thereof to be ascertained under such procedure and regulations as may be prescribed by the Secretary of War

The clause as passed by the Senate was agreed to in conference and passed both Houses of Congress

This stoppage of pry will, it is believed, do as much of more than anything else that can be done to lessen the renereal rate in the Army Until the enlisted man can be made to realize the necessity of the prevention of venereal diseases not much can be accomplished. Heretofore many of them have been apparently perfectly willing to stay in the hospital for several months with venereal diseases while their companions did the duty that they should have been doing Some surgeons have, in fact, stated as their opinion that men have wilfully contracted venereal diseases in order to escape disagreeable duties, such as practice marches, etc It is extremely difficult to make the average man either in the army of in civil life realize the seriousness of gonorrhmal infection

Napoleon said that an aimy maiches on its belly, but it also marches on its shoes hence the importance of the following extract -

#### SHOES AND BOOTS

The Army is now fully convinced of the necessity of having military shoes made on a correct last and proper-The lasts and styles of the shoes have been changed from time to time, and each time the change has apparently resulted in a better shoe being adopted The tan and black garrison shoes as at present issued have been found very satisfactory on the whole Not so much can be said of the present marching shoe Numerous adverse reports have been received from various surgeons. The majority of them report (a) that the toe of the shoe is too low, (b) that the toe of the shoe does not properly protect the toes of the foot, (c) that the width of the shoe is too great for the length, and hence if a shoe is long enough for the foot it is too wide, (d) and the instep is too low. This question has been under consideration for several months by a board at l'ort Leavenworth, with Maj. E. L. Munson, Medical Corps, as president A great many radiographs have been made of feet with shoes of various patterns and These radiographs show that practically without shoes the feet of all adults are deformed from wearing shoes made on an improper last. The board suggested that a number of shoes be made on a set of lasts recommended by them, and that a practical test be made of these shoes under the supervision of the board. This was done A command of 379 men were properly fitted with these shoes, under the supervision of the board and went out on a practice march of 117 miles, occupying 9 days Careful notes were kept and examinations made both by It is believed that a satisfactory inspection and X-ray field shoe has been devised as the result of the work of this board. The same last will be used for all shoes, both garrison and field, black and tan

The board calls attention to the fact that the shoe cannot be fauly considered by itself alone, since its actual utility depends upon the tripod of construction, supply, and fit If any leg of this tripod fails, the wild structure falls to the ground and the shoe is unsatisfactory The report is of great and permanent value in that it not only discusses in a thorough and scientific manner the qualities which are essential for a military shoe, but that it also demonstrates that many soldiers do not select shoes that fit them, and that for this reason trouble may occur with the very best shoe. Their recommendations with regard to fitting are very practicable, specifying the method of fit, and providing that the fitting of shoes shall be personally supervised by an officer. They also made the wise suggestion that officers should be given a course of instruction in care of the feet, including the fitting of The board calls attention to the fact that the Quartermaster's Department, not realizing the import ance of the matter, has not, heretofore, furnished to each post a sufficient supply of shoes of each size and width to enable company officers to fit their men. This leg of the tripod, as pointed out by the board, is as

essential as any other Capt Weed, Medical Corps, in a special report on feet and foot-wear, points out that the fitting of the socks is a matter of great importance. A pair of socks of improper size may cause almost as much injury as shoes of improper size

Many of our readers especially those in civil employ are acquainted with the rule for height and weight of natives of Bihai as based upon records of 28,000 prisoners which is known as Buchanan's Formula—which runs, taking 5ft as equal 100lb in weight add 3lb for every inch above till up to 5ft 7 for 5ft 8 and over add 416 for each inch, cg, 5ft 3=109lb 5ft 9=136lb This formula for natives of Bihar and other parts of India corresponds very closely with the following table in use for natives of the Philippines—

The following is from General Order No 1, Head-quarters Philippines Division, Manila, P I, January 1, 1910

The physical examination of recruits for the Philip pine Scouts will be conducted in accordance with the authorized manual for the examination of recruits, except as hereinafter specified. It will include examination for filarial disease, and any applicant afflicted therewith will be rejected.

No recruit for the Scouts will be accepted for enlistment who is under 59 inches in height or 100 pounds in weight

The following table will be used in determining the minimum allowable weight and chest measurements relative to height

Table of physical proportions for height, weight, and chest measurements

	<del></del>	
Height	W eight	Chest mea- surement (at expiration)
F1 41 5 マー・ 5 マー 5 マー 5 マー 5 マー 5 マー 5 マー 5 マー 5 マー	Pounds 100 101 102 103 105 107 110 113 118 124 127 130	Inches 283 283 293 294 294 294 30 304 304 305 314

Chest measurement at expiration should be taken under conditions of normal respiratory effort. Chest mobility and measurement at inspiration will be taken, but will not be used as data for rejection of a candidate for enlistment, unless they are such as to indicate abnormality or pathological conditions.

In the case of an especially desirable applicant who is active, has firm muscles, and is evidently vigorous and healthy, who varies from the established standard special authority for the enlistment may be requested from these head quarters

On the subject of clothing and headwear for the tropics we quote the following —

### OLIVE DRAB COTTON UNIFORM MACERIAI

After a series of experiments on samples of olive diab cotton uniform material of lighter weight than the regular issue, the board decided that olive drab is not a suitable colour for ordinary wear in the tropics and that if any change is made from the khaki for use in the tropics it should be in the direction of a lighter rather than a darker shade

#### HELMETS OF VARYING COLOURS

At the request of Col Hodgson, president of the helmet board, some experiments were made to determine the relative coolness of a white helmet, khali helmet, an olive diab helmet, and a campaign hat The average

of all the observations in all four experiments was defollows. Olive drab helmet, 40.62° C, khaki helnet, 38.38°C, white helmet, 35.36°C, campaign hat, 46.60°C. The table emphasizes the great importance of colour in uniform material. The helmets were exactly the same except for colour. The board concludes that—

The general use of white griments as a uniform, how ever desirable it may be from heat reflection point of view, is for many reasons almost impracticable and khaki of a shade not darker than our present issue is a very good substitute for white material. For helmets there seems to us to be no valid reason why white should not be used. A white helmet can easily be kept looking well by the use of blanco and its appearance is not unattractive when combined with a uniform of khaki, olive diab, or any other colour. If it be planned to use a helmet in actual hostilities a khaki or olive drab dressing can be provided with which to promptly change the cover of the helmet from white to a less conspicuous colour. For the above reasons the board strongly recommends that any helmet which is adopted be covered with white material in place of either khaki or olive drab

It was recently observed by the board that the French troops in Indo China generally wore a white helmet and it is believed that the English soldiers do in India

The importance of considering the heat absorbing quality of a uniform material is emphasized by the work reported at the recent meeting of the Philip pine Islands Medical Association by Free and Aron of the Bureau of Science. Their observations go to show that the injurious influences of tropical climates are probably due not to the short wave length actinic of ultra violet rays of the solar spectrum, but to the long wave length heat rays. If, however, it is desired to give protection against a possible influence of actinic rays this can be accomplished by a black lining in the helmet Under any cricumstances the brim should have a lining of dark blue or green, as this is restful to the eyes.

On the subject of dysentery we may quote the following useful note

#### DYSENTERY BACILLI CARRIERS

"During the first six months of 1911, out of 60 stools examined, from 35 persons, mostly typhoid suspects, and convalescents, four carriers of dysentery bacilli were found. One of these cases had two organisms in his stools, Shiga and Morgan No. 1. The identity of the organisms in these cases was established by their fermentation reactions on the sugars, their morphology and motility, and their indol production.

It is evident that the incidence of dysentery bacillus carriers is as great as, if not greater than, that of typhoid carriers. It is also clear that dysentery convalescents should be returned to duty only under the same restrictions as those now governing typhoid convalescents in the military service. The importance of contact infection from carrier as a cause of bacillary dysentery is greatly emphasized by the findings just recorded. The detection of four dysentery bacillus carriers out of 35 persons examined shows as high a percentage of positive results as any quoted by Chapin, and serves to lay stress on his major proposition, that carriers and missed cases may be very great factors in the spread of disease."

On the use of mosquito proof rooms the following note on size of mesh in the gauze is of practical value —

The Surgeon-General directed that these experiments be made with a view to determining whether the Philippine Anopheline could pass through 16 mesh bronze gauze. Tests were carried out with 8, 12, 14 and 16 mesh gauze and with both horizontal and vertical gauze partitions. Starvation tests were made where a single layer of netting separated the mosquitoes from

food and water, and sexual attraction tests where unfertilized females were separated from freshly hatched males by a double partition of the mesh to be examined A practical test wis mide by sleeping under a 16 mesh bronze gauze bed net in a locality where anophelines

were very numerous

It was found that 16 mesh bronze gauze was im-ervious to the following insects My-omyuu rossii, pervious to the following insects My-omyut rossit, Myzorhynchus barbirostris, Pyretophorus freera (Banks), Mansonia annulifera, Mansonia uniformis, Culer tatigans and Cules microannulatus, My.omyra rossu, which is as small as any common Philippine species of the Anopheline, was unable to pass through either 16, 14, or 12 mesh metallic gauze but did go through 8 mesh cotton netting

Mosquitoes of the genus Stegomyra calopus were found to pass through 16 mesh bronze gauze with considerable ease. Out of several dozen insects which were tested eight males and nine females succeeded in going through the 16 mesh netting One female effected a passage through a double partition of the gauze to ioin the male on the opposite side

Our experience agrees with that of Dailing, who found in Panama that Stegomyia could pass and Anopheline could not pass through 16-mesh metallic

gauze

The board concludes that, although the 16 mesh netting will probably keep out all malaria bearing nophelines found in the Philippines, the board considers its use inadvisable because it does not keep out mosqui toes of the genus Stegomy is which are not only extremely annoying insects, but are a potential source of dinger in case vellow fever should be introduced into the Archipelago

The following note sums up their experiences of the Wassermann test for syphilis -

The specificity of the test —As a result of experience it is believed that the Wassermann test may be considered specific for syphilis if such conditions as leprosy, malarial fever, scarlet fever, and frambosia can be excluded ill of these diseases a certain proportion of patients have given a positive result, but fortunately they can generally be excluded by the difference in the clinical history and symptoms. A few other conditions have also given positive results in isolated instances as carcinoma, tuberculosis, pityriasis, 10sea, and sepsis, but such cases are so infinitesimal in-number that they donot vitiate the plactical value of the test It is certain that a large percentage of positive results in non syphilitic cases is proof of imperfect technique, and such reports must be viewed with suspicion

If the diseases in which the complement fixation test has occasionally been found positive can be excluded, a double plus or plus reaction is sufficient to enable one to diagnose the presence of lues It seems certain that, under such conditions, the test is absolutely specific whether symptoms of the disease are present or not, and whether there is, or is not, a history of infection In those cases in which after the appearance of a suspicious lesion, the negative reaction becomes positive, a diagnosis of lues can be made without hesitation On the other hand, a diagnosis of syphilis should never be made upon a plus minus reaction alone

The value of a negative reaction is not as great as that of a positive one A considerable proportion of cases of lues do not give a positive reaction, even though symptoms are present, and for this reason the disease cannot be excluded on the strength of a negative result. The history of the case, the symptoms present, and the amount of previous specific treatment must all be carefully considered

Practical value of the test -After nearly three years experience with the Wassermann test in the laboratory at the Army Medical School, it has been domonstrated at it is an indispensable aid in the diagnosis and treat

ment of syphilis In the military service the test has proven of the greatest value in the diagnosis of obscure and latent infections and in controlling treatment with salvar an and mercurials. It has also been of value in preventing the enlistment of syphilitic individuals and in clearing up the diagnosis in cases involving retirement for physical disability

# Medical Society.

#### JHANSI MEDICAL SOCIETY

THERE are over thirty medical men and women of various grades in the station, uz. 11 Medical Officers (5 R A M C, 4 I M S, including Civil Surgeon, 1 Civil Railway Medical Officer, 1 Mission Lady Doctor) 8 Assistant-Surgeons (including 1 Assistant Civil Surgeon and 1 Assistant Railway Medical (fficer), and 12 Sub-Assistant Surgeons, besides some retired men in private practice

It was proposed to start a Medical Society before which papers may be read, and interesting cases, etc., exhibited and discussed, all Medical Officers to be 1st class members, Assistant-Surgeons 2nd class and S A S, 3rd class No

subscriptions were at plesent contemplated

The first meeting of the Society was held on
Thursday, 20th March 1913, at the Combined Indian Troops Hospinot at 5 PM Present 4
I M S Medical Greens, 1 Civil Assistant
Surgeon 10 Sub-Assistant Surgeons, total 15
Lieut-Colonel P W O'Gorman, 1 M S. was proposed to the chan by Captain M A Rahman and seconded by Senior S A S Jemdar D P The President in opening the meeting explained the advantages of such a society, where-all-medical men could throw aside their official positions and meet in friendly converse as professional brothers in a common noble cause the advancement of science and the alleviation of human suffering He pictured how, scattered as we were in our daily avocations, we frequently met with puzzling or persisting cases which defied all our efforts to overcome, and how vainly we looked for advice elsewhere He indicated how isolation often begetted self-sufficiency, despair of the apeutics and actions of drugs, or other undesirable characteristics. A Medical Society served to break down the barriers of professional caste and to smooth over the possibilities of official friction, while it also excited healthy interest in our work and sharpened our powers of observations by giving us an immediate objective before which we could present our discoveries or difficulties. If we took notes in our daily work many useful and indeed valuable data, which otherwise would be lost, could be placed on record for the benefit of us all. It is in the common or ordinary experiences that we could benefit ourselves and patients markedly, for he who could cure simple ulcers or malarial fevers with greater celerity conferred a greater boon on

r greater number than one who performed a major operation on a few individuals. Some of us were experts or had special experience of special ailments, it may be enteric fever, malaria, venereal, aural diseases, bacteriology or surgical procedures. We could each contribute our quota for the general good. No medical man therefore should fail to realise the advantages of a medical society, and it was hoped all would not only join but, even by a little self-sacrifice of time and labour, assist in enlightening his fellowworkers and upraising the medical profession and the medical services.

Captain Rahman showed the following cases —

(1) Functional paiesis of the left aim accompanied by aniesthesia of the left side of the body, with loss of sight, hearing, smell, and taste, on same side Col O'Gorman thought it was a curious case of hysteria in the male, and related his experience of a remarkable case of a European who suffered from hystero-epilepsy with simulation of hepatic abscess including rise in temperature, and pain and swelling over right hypochondrium. Dr Tiwari suggested that Ammonium Bromide with Arsenic proves useful in such cases.

(2) Accessory 11b in left supra-clavicular region, Captains O'Neill and O'Leary helped to

second dose of salvarsan and was left uncured, whereas Captain Rahman's case immediately recovered after the second dose, all mucous patches disappeared, and he was discharged to duty

Colonel O'Gorman showed—(1) A guincaworm case showing outline of the whole worm under the skin of leg. An interesting discussion arose in which Captain O'Neill, Mr. Bhagwantrao and others took put. Dr. Tiwari from his expenences in Rajaputana suggested various methods of treatment.

(2) Case of pneumonia, presenting extraordinary features. There was violent delirium amounting to mania, followed later by comavigil, and great prostration assuming a typhoid type. Symptoms only abated on patient passing 3 round worms followed by 1 more later after santonine and castor oil. Recovered

After further discussion, he laid before the Society a table (see below), showing an interesting survey, in round figures, of the sickness and mortality amongst British and Indian troops, in India, during the last 5 years, for which he was indebted to Col J Hendley, Deputy-Director Medical Services, Simla

Sickness and mortality amongst British and Indian troops, per 10,000 of average annual strength 1907-1911—

<del></del>			British Troops				Indian Troois					
		52 63 03	1907	1908	1909	1910	1911	1907	1908	1909	1910	1911
Admission 13	te (all causes)		756	839	717	576	525	629	674	534	573	516
Death rate (all causes)		5	10	6	5	5	6	7	6	5	4	
Constantly sick inte		46	46	40	32	29	22	23	21	21	20	
	(Adn 1 ite		13	14	ŋ	5	ţ	1	3	2	2	2
Enteric Fev	D rate		2 77	2 76	1 58	63	33	<sup>1</sup>	57	13	44	42
	(Adn 1ate		153	214	203	132	90	220	266	180	160	105
Malarra	D rate		20	51	36	10	08	66	55	24	25	42
	(Adn 1ate		90	70	65	59	53	15	15	16	17	15
Veul Diss	D 1 ite		04	04	01	i 01	03	02	02	01	03	03
Invldg rate (	all causes)		26	16	8	1 5	7	6	7	6	5	4
Case mortalit			10	11	5	4 5	9	10	10	9	8	91

Figures for 1912 are not yet ready

Remaining admitted died out of hospital = Total cases

Ratio worked out on admissions only

diagnose this case, which at first was thought to be a prolonged transverse process of a cervical

(3) Case of syphilis treated with two intramuserilar injections of salvarsan at 9 days interval. In connection with this case Colonel O'Gormin related how a similar case under hicare at the same time, with syphilides, tonsillitis ulcerated palate, threatening perforation, and several raised mucous patches on tongue, refractory to all ordinary treatment refused to have his Among the British the admissions in 1911 per 1,000 compared with 1907, show a decrease of 231, deaths 3, constantly sick 17, case mortality 1 and invaliding 19 Enteric also shows a marked reduction, in admissions 9 and death-24, while malaria had 64 admissions, and venereal 37, less per 1,000. The table shows a creditable diminution all along the line and a steady declination throughout the quinquentium. Among Indians there has also been a steady improvement although owing to conditions beyond

the control of the Medical Officer (e g, men)bringing back from furlough, etc, all manner of ailments), it is not so maiked Admissions decreased by 113, deaths 2, constantly sick 2, case mortality 0/00, 1, and invaliding 2 Enteric however, owing doubtless to better diagnosis, shows an increase of 1 admission and 1 death, while malaria has a decrease of 120 admissions, and venereal shows no change Altogether the improvements are matters for congratulation, in which every branch of the medical services share, for although the year 1911 only is taken for comparison, the figures show satisfactory annual progress

After President had congratulated the members on the satisfactory opening of the society and the useful discussions carried on, the meeting closed

# Connespondence

#### LOOSE TEETH IN PREGNANCY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR, -A case of considerable interest has been lately under my care in which in each pregnancy, five in number, the teeth from the beginning have become loose, the looseness has increased until the confinement, and afterwards as strength is regained the teeth have again become finally fixed in their

Just before the first confinement 16 years ago when the patient was 164 years old one tooth fell out, in subsequent confinements similar losses have been avoided by not enting foods that might bring about this accident

The patient herself was born with two teeth, the fourth child was born with one and a second was cut a month after The last baby was boin with the two central lower incisors just beneath the mucous membrane

At such pregnancy the patient who is a stout woman loses about 2 stone in weight. At other times when she is run down from any cause, she has noticed the same loosening of the teeth

I have no references at hand from which I can ascertain the frequency of this condition, but it seems of sufficient interest to merit record. I imagine it is related to the pituitary changes occurring during pregnancy

> Yours, etc., F A SMITH, MD, MAJOR, INS, Rendency Surgeon at Indore

#### CÆCUM AND APPENDIX IN A LEFT INGUINAL HERNIA

To the Editor of "THE INDIAN MEDICAL GAZEITE"

Sik,-The following case is worthy of record -

A Banjara boy, aged 21, was brought to hospital with the following history

About six months ago a swelling appeared in the left inguinal region which went away when he lay down, latterly at intervals of about a month, it was noticed that the tumour was only reduced with difficulty at these periods, the boy had pain which was accompanied with vomiting, after which the swelling again disappeared. Two days before admission he had a similar but more acute attack, during which the tumour about doubled its size and became irreducible.

The swelling which was avidently a barrier accounted the

The swelling which was evidently a berma, occupied the left side of the scrotum, was tense, painful, about the size of an orange, and fived both testicles were in normal position. On the outer side of the swelling was a thickened cord like structure which proved to be the appendix

The condition was being into the funicular piocess, the contents being the execum with the appendix and two inches contents being the cacum with the appendix and two inches of tleum. As the appendix was much thickened and congested it was removed the rest of the operation calls for no comment. After treatment was much simplified by the fact that the boy was still "on the breast"

Yours, etc W TARR, WD, IRCSE, CAPT, IMS Civil Surgeon, Nimar

#### CHRONIC EPIDIDYMITIS

To the Editor of "THE INDIAN MEDICAL GAFFITE"

SIE,—Will on please publish the following note—There is a variety of epididymitis which has received but slight attention at the hands of writers of text books. Although they admit the fact that there exists a chronic variety of epididymitis caused either by blows or strains, they do not seem to appreciate its significance fully and pardonably so for the cases are few and far between I have but only a little experience of such cases and I have attempted below to describe the nature of such cases

It seems that this variety of epididymitis like hydrocele is more common in Bombay than in other parts of the presidency. The subject is a young man of about 20 to 25 years of age. He suffers from an acute attack of epididymitis which after 36 to 48 hours clears up completely. These attacks are repeated once or twice, and he does not suffer from them any more. An intelligent nation, seeks the advice of any more. A long time after he notices a him nodule in the globus major. An intelligent patient seeks the advice of the surgeon at this early stage. Oftentimes this nodule is mistaken for a tubercular nodule and I know of at least one instance wherein a competent surgeon made this very mistake and advised an operation. If this nodule is not treated in time it spreads so that after lapse of years the whole of the epidadymis becomes uniformly enlarged. The physical signs that this condition presents are unequivocal. The epidadymits is uniformly enlarged, and is firm to the touch. It retains its usual shape. It is not tender, the cord is thickened but not matted together. There may or may not be associating orchitis. Such cases are naturally condemned as gonorrheal. But this condition exists in people whose character cannot be doubted at all.

My idea in indicating a few outlines of this pathological condition is to invite an exhaustive treatise on the subject from the pen of an experienced surgeon, and I think my self highly obliged if such a treatise appears in your columns

Yours, etc., B G DESHPANDE

GRANT MEDICAL COLLEGE, Apr il 1913

#### RHEUMATISM AFTER RAT BITE

To the Easter of "THE INDIAN MEDICAL GAZETTL,

Sir,—Will any of your readers please say whether he has observed cases of rheumatism following upon rat-bite? If so, will he be kind enough to explain the theory of its causation? In my observation some cases have come in which theumatism followed not bite after a period of one

Dewas, C I
Dated 22nd March 1913 } S V SAVANT, L MS, MOPS,
State Surgeon, Devas, C I

# A MORPHIN CONTAINING PATENT DRUG

To the Editor of "THE INDIAN MEDICAL GAZETTE ,

SIR,—Lately a patent medicine in the form of pills under the title of "Jintan" is being sold in the market on a very extensive scale. I myself used them as they were very much extolled for sweetening the breath after chewing of pan. After taking the pills three times (as they were sent to me as a specimen) it struck me that it must be containing a narcotic drug. To day subjecting it to qualitative analysis here I find that it certainly contains morphin. Not I am sorry I cannot tell you the proportion of the drug I wish therefore to attract the attention of the medical world and that of the excise department by the article

Yours, etc , S V SAVANT, LMS, MCPS, State Surgeon, Dewas, C I

#### A REMEDY FOR PRICKLY HLAT

To the Editor of "THE INDIAN MEDICAL GAZETTE"

Sik —I have been advised to publish an account of a semedy for pixelly heat which I have used for some veris with success

Make a solution containing -

Water
Hydrochloric Acid B P Fort
Corrosive sublimate

997 parts
2 ,,,
1 part
1,000

That is to say, the solution contains one part in a thousand of sublimate and two parts in a thousand of hydrochloric acid

The solution should be subbed well in all over the affected parts twice a day, and allowed to dry on, if possible, under a punkah. If the skin is tender, the solution may be washed off with water a few minutes after application.

This treatment usually gives relief in a few hours and cures the disease in a couple of days. The skin remains hable to fresh attacks. Hence it is advisable to apply the solution at intervals of a few days during the hot weather. I fresh attack may take on in annusual appearance in that the area affected may be a narrow streak several inches long and half an inch to an inch wide. Within this area the skin is covered with numerous minute prickly heat spots. The appearance is as if the reinfection was derived from a drop of infected liquid trickling down the body. This reinfection readily yields to the treatment.

The method of curing or allevinting prickly heat by means of disinfectants, including sublimate, is not new, but the effect of acid in increasing the power of corrosive sublimate is I believe, not yet fully recognised. Some years ago my late assistant Dr. B. P. Ghadrilly criried out some experiments on the penetrating power of disinfectants. The method he employed was to float a postage string on a solution of the disinfectant to be tested. On the centre of the stamp was placed a drop of a bouillon cultime of cholera or of some other microbe. Subcultures were made from this drop of bouillon at intervals. If these remained sterile a proof was obtained that the disinfectant had penetrated the substance of the stamp in sufficient quantity to kill the microbes in the bouillon. To prevent the stamp from sinking while it was floating on the disinfectant, its edge was covered with the rubber solution used for mending tyre punctures. As this solution is not wetted by water, the stamp was kept after indefinite periods. It was found that, of various common disinfectants tested, sublimate was the only one that could penetrate the stamp within a few hours, and that a mixture of sublimate and acid was far more efficient than either of these substances alone. These observations led me to try the effect of an acid solution of sublimate on prickly heat.

Yours, etc.,
E H HINKIN, WA, Scb.

Vay 1915

Chemical Examiner, U-P

#### THERAPEUTIC NOTICES

MESSES BURROUGHS, WFLLCOML & Co have added to then list 'Tibloid' Hypodermic Morphine Hypophosphite, in products of four strengths. Morphine Hypophosphite is a salt possessing qualities which render it particularly suitable for use in hypodermic medication when a concentrated solution is desired. It is perfectly stable, is practically neutral in reaction and has the remarkable solubility of 1 in 3 of water. In clinical use its great solubility is a point of decided value, and it has been found to act well and promptly, without causing pain at the point of injection.

#### LEITZ'S MICROSCOPES

The optical and mechanical engineering works of Einst Leitz of Wetzlar, which is one of the very foremost from of the trade, have recently completed then 150,000th compound microscope. This valuable instrument has been presented to His Excellency, Professor Ehrlich of Frankfort on Main and the firm of Leitz has thus paid honour to a genius of scientific discovery.

It will be remembered, the 100,00th Leit/ Microscope was presented to the late Robert Koch, the famous bacteriologist who was Director of the Imperial Institute for Infectious

Diseases, Berlin

W) have received a packet of literature on the virtues of Lactagol, the extract of cotton seed, which has such an effect

in increasing the flow of mother's milk. Some of the agents are Messis. Thomson & Taylor Bombay. Buthgate & Co. Calcutta, Mr. W. H. Hillen, Madris. Messis. Smith and Campbell, Lahore.

Misses bailiter Tender Covannance that the new edition of Cistellam and Chalmers' "Tropical Medicine will be published almost immediately. This text book written from the authors' wide experience in the tropic contains all the most recent researches. The new edition has been brought fully up to date (March 1913). All the more important parts were kept in the authors' hands until the last moment, so that no fresh discovery should be omitted. The book has been revised throughout, and many of the chapters, notably the ones on Protozoa, Lungi Skin Affections, Pellagra, Enteric Fever and Tryphosomians have received special attention. Some 250 new illustrations have been introduced and the text has been increased by the same

#### DISINFLATION IN TYPHOID CASES

l correspondent sends us the following letter, which will be read with interest by those who have to deal with cases of Typhoid Fever. He writes—"Those in attendance on typhoid cases, not eveluding trained miness, often exhibit gross ignorance regarding the efficient use of disinfectants. Personally, I place reliance on izal to keep the simioundings of the fatient aseptic. Thus, I employ that prepriation in a strength of 1 in 10 for the disinfection of eitern exciets. It has been shown, I believe that a dilution of 1 in 100, or even 1 in 200, should be sufficient, but it is so important to render such excited harmless as soon as possible, that I have preferred the stronger solution. For the disinfection of wills, furnitine, etc., a dilution of 1 in 200 suffices and this solution may also be used for the disinfection of solid linear without fear of spoiling it. In the general cleaning of wills, floors, etc., I have found that the constant use of a 1 in 200 solution does not affect the hands of the staff employed for the purpose in a large fever hospital with which I was formerly connected."

THE Historical Medical Museum organised by Mi H S Wellcome will be opened in London in the end of June It will be of great interest to many medical men

# Sqrvice Notes

In the Home Deputment Resolution No 89,917 Public, dated the 30th April 1910, certain rules were laid down by the Governor General in Council, with the approval of the Secretary of State, to regulate the procedure to be adopted in the case of military officers in civil employ, who are charged with serious misconduct or inefficiency. The toreinor General in Council has recently had occasion to consider the question of supplementing these rules to meet cases in which it may be considered inexpedient on other grounds, to retain in civil employ an officer of the Indian Medical Service, and, with the approval of His Majesty's Secretary of State, is pleased to publish the following orders.

I In officer of the Indian Medical Service on first appointment to civil employ in a province, shall be on probation for a period of two years, and it shall be open to the local Government at any time during this period, and before he has been continued, to move the Governor General in Council to revert him to military duty on the ground that he is unsuited for civil employ. It is intended that this period of probation shall be a real test of the suitability of an officer for the requirements of the civil department, and confirmation should not be regarded as a matter of course.

II In order to enable the Governor-General in Council to decide whether any proposal for reversion should be accepted, the local Government shall specify, as exactly as possible the defects which, in the opinion of the Head of the Province, render the officer unit for civil employ. A breakdown in health shall not be regarded as a sufficient reason for a proposal for reversion under these rules.

HI Every such case shall be submitted by the local Government to the Government of India in the Home Department except in the case of officers in Political employ, when the Government of India in the Foreign Department shall be addressed

SURCION GENELAI GEORGE Blille, Madias Medical Service, lettied, died at Bridge of Allan on 19th kebinary 1913. He was the son of Mi Bidie, of Buckles, Banifshire,

and was born on 3rd April 1830. He was educated at Aberdeen and Edinburgh, took the M. D. at Marischal College, Aberdeen, and the L. R. C. S., Ldinburgh, in 1853, and entered the I. M. S. as Assistant Surgeon on 20th February 1856. He became surgeon on 20th February 1856. Surgeon Major on 1st July 1873, Brigade Surgeon on 28th February 1883, Deputy Surgeon General on 11th October 1884, and Surgeon General on 9th October 1886, returng on 20th May 1890. He received the Order of the Crown of Italy in 1882, the C. I. E. on 1st January 1883, a good service pension on 10th February 1889, and was appointed Honorary Surgeon to the Queen on 16th February 1898.

Surgeon to the Queen on 16th February 1898
Soon after he entered the service Assistant Surgeon Bidie served in the Indian Mutiny, with the Haidarabad contingent, receiving the medal. After the mutiny he was appointed Civil Surgeon of Guntin. In 1867 68 he was placed on special duty in the coffee districts in Maisur and King, and reported to Government on the ravages of the boreinsect in coffee estates. He held the posts of Secretary to the Surgeon General in 1870 72, and 1880 85, Superintendent of Madias Museum from 1872 to 1884, served on the cinchon commission in 1873, became a Fellow of Madias University in 1879, and in 1885 became Sanitary Commissioner of Madias, being promoted from this post to that of Surgeon General with the Government of Madias. After his retirement he acted as delegate from Madias to the International Congress of Hygiene and Demography in 1891. He was the public of many works, chiefly on national history, economic products, and comage. Lieutenant Colonel George Bidie, Madias Medical Service, is his son.

Surgion Henri Prescott Roberts, Bomby Medical Service, tetned, died in a nuising home at Ladbioke Giove, London, on 16th Maich 1913, a ed sixty six. He was educated at Edinburgh, where he took the MB in 1868 and the MD in 1877, as well as the LRCS, Edinburgh, in 1868, and entered the IMS as Assistant Surgeon on 1st April 1869 becoming Surgeon on 1st July 1873, and resigned his commission on 11th December 1880 After leving India he settled in practice at Erling, where he remained for about thirty years, retning from practice and moving to Hythe about two years ago. He served in the Malta Cyprus expedition of 1877, and in the Afghar war of 1878 79

LIEUTENANT COLONEL CHAPLES HARDWICK LOUW MEYER of the Bombry Medical Service, retired on 15th March 1913, receiving the extra compensation pension allotted to Bombry for the year 1912 13. He was born on 19th November 1859, educated at Grey's, took the MR CS in 1883, the MB, London, with Honomis, in 1883, the BS, also with Honomis, the same year, and the MD in 1885, and entered the IMS as Surgeon on 31st March 1887, becoming Major on 31st March 1899, Lieutenant Colonel on 31st March 1907, and being placed on the selected list on 1st January 1910. Most of his softice had been spent in civil employment in Bombay, where latterly he held the post of Principal of the Grant Medical College. The Army List assigns him no war service.

LIEUTENANT JOHN FREDERICK HENRY MORGAN IMS, tesigned his commission from 10th Muich 1913. He was born on 8th November 1887 educated at Bristol and Middle sex Hospital took the MRCS and LRCP, London, in 1909, and entered the IMS as Lieutenant on 28th January 1911, so had baiely two years' service. The Army List assigns him no war service. For the past six months he had been on leave

LIEUTFNANT COLONEL JOHN MACFARLANE CADFLI of the Bengal Medical Service retried on 5th March 1913. He was boin on 8th March 1862, educated at Edinburgh, where he took the M.B. and C.M. in 1884, and entered the I.M.S. as Surgeon on 1st October 1895, becoming Surgeon Major on 1st October 1897, Lieutenant Colonel on 1st October 1905, and being placed on the selected list fom 16th June 1910. He served in Burma in 1886 89, taking part in the operations of the Fourth Birgade, Mogaming column, and receiving the medal with two class in the North West Frontier of India in the Hazna expedition of 1891, receiving a class, and in Thah in 1897 98, gaining the medal with two class. For many rears past he had been in civil employ in the United Provinces his last appointment being that of Civil Surgeon, Ihansi

Major Thomas Edward Watson, of the Madias Medical Service, letired on 15th Maich 1913. He was born on 26th 1 ebiuary 1872, educated at Edinbuigh, where he took the M B and C M in 1894, and entered the I M S as Surgeon Licitement on 29th July 1895, becoming Surgeon Captain on 29th July 1892, and Major on 29th January 1907. He was Medical Officer of the 95th Infantry, and had served in Turch in 1897.98, in the operations against the Khani Khel

Chamkans, and in the operations in the Bazar Valley from 25th to 30th December 1897, receiving the medal with two clasps, and in China in 1900, medal

BRIGADE SURGION CHAILIS ERIDITICK OLDHAM, Bengal Medical Service, retried, died at Great Bealings, Suffolk, on 25th March 1913. He was born on 2nd January 1832 educated at St. George's Hospital, and took the MRCS in 1858, and the LRS, Edinburgh, in 1859. Entering the IMS as Assistant Surgeon on 27th July 180, he became Surgeon on 27th July 1871, Surgeon Major on 1st July 1874, and Brigade Surgeon on 24th October 1887, retning on 2 th February 1890. In his early years of Service he was Medical Officer of the Aligarh Levy, afterwards the 39th Bengal Infantry. In the sixties he was for some time in civil employ in the Punjab, where he served as Civil Surgeon of Guidaspur and Dalhousie, and as Medical Officer of Bahawalpur State. In 1875 he was posted to the 1st Guikhas at Dhaimsala, and spent the rest of his service in that regiment. His war services comprise the Perak expedition of 1875 76, medal with class, and Afghanistan, 1878 79, with the Thal Chotiali held force medal. He was the author of a small work entitled What is Malaria, and Why is it Most Interior in Hot Chinales published by H. K. Lewis in 1871.

Dreut Strices General John Mills, Bombay Medical Service, retired, died at Vateley, Hants, on 1st April 1913, aged 91. He was born in 1831, entered the IMS as Assistant Surgeon on 3rd April 1848, became Surgeon on 15th June 1864, and Surgeon Major on 3rd April 1866 ettring with a step of honoraly rank on 1st January 1876. The first three years of his service were spent in the Indian Navy, an experience which then fell to the lot of almost every your general officer of the Bombay Service. After his service affort he went home on furlough in 1854.55 and on his return served in the Persian war, being present at the action of Khushab, and receiving the medal and class In 1858 he was appointed Superintendent of Vaccination in the Southern Division, in 1861 Civil Surgeon of Dharwar and in the following year of Kolhapur, and in 1867 agair took furlough. On his return he was posted to the 21st Bombay Infantry or Marine Battalion now the 121st Proncers, from 28th July 1868, and spent the remainder of bits service in that regiment.

CAPIALS R T WILLS, INS, made over the Jarl at Dera Grazi Khan to Captain N M Wilson, INS, on 15th Man & 1913

CIPEAR H G'STILES WEBB, I MS, was appointed Chief Malaira Officer, Punjab, on 4th March relieving Major E L Perry, I Va, gone on leave

COLONIES F A HARRIS (SI, MD, FRCP, IMS INSPECTOR General of Civil Hospital, Bengal, is granted privilege leave for three months under Articles 620 (b) and 260 of the Civil Service Regulations, combined with leave on private affairs for four and a half months under paragraph 226 of the Army Regulations, India, Volume II, with effect from the 10th April 1913

LIEUTENANT COLONEL W R ROMARDS, CMC, WD, IMS Chief Medical Officer, North West Frontier Province, on return from leave, is appointed to officiate as Inspector General of Civil Hospitals, Bengal, during the absence on leave of Colonel G F A Harris, CSI, WD, FRCP, IMS, or until further orders

CAITAIN C F MAIR, ML, Indian Medical Service Medical Officer, 90th Punjabis, to officate as Medical Storekeeper to Government, Lahore Cantonment, 1200 Major A A. Gibbs, Indian Medical Service, granted combined leave for eight months, with effect from the 14th April 1913

The services of the undermentioned officers are placed temporarily at the disposal of the Hon'ble the Chief Commissioner of Assim for employment on the North-East Frontier, with effect from the several dates on which they assumed charge of their present duties

As Medical Officers with the Military Police

Captain R S Kennedy, I M S Lieutenant J V Macdonald, I M S

CAPTAIN H M BROWN, WB, IMS, IS appointed to act as a Deputy Sanitary Commissioner in Bihar and Orissa during the absence on leave of Captain W C Ross, IMS, or until further orders

OAPTAIN HUCH B STFEN, IMS, Civil Surgeon, Bengal, has aken the degree of M A O in the new Queen's University, Belfast, and has been awarded the Gold Medal

THE King has approved of the admission of the undermentioned gentlemen to the Indian Medical Service as Lieute nants on probation

Dated 25th January 1913

Richard Reginald Maitland Porter, M. I. Robert Sweet, M 1 Edward Calvert Patrick Joseph Walsh, M L John Robert Douglas Webb Francis Phelan Arthur Hilary Clifton Hill, Nawin Chand Kapui Joseph Francis Holmes Aichibald Campbell Macine, M. L. Haji Sulaman Gulamliussein Haji Narayan Kushna Bal

THE Commissions of the following Lieutenants on probation have been confirmed with effect from 27th July 1912 -

John Dykes Wilson, M B Laurence Allfrey Pelham Anderson William Calder Paton, M P James Bennett Hance, M B Stephen Gordon
Huold Kirkby Rountree, M B
Graham Yulden Thomson, M B
Basil Franklin Eminson, M I Anthony Kennedy Sorab Dhunjibhoy Ratnagar Colin McIver

MR S S KOIMATUP, Huzzi Deputy Collector, Karwai, and Captain J Smally, MD, IMS, respectively delivered over and received charge of the Karwai Prison on the 24th March 1913 before office hours

CAPTAIN J L LUNHAM, MB, BCh, IMS, and M1 S S Konmatun, Huzun Deputy Collecton, Dhanwan, respectively delivered over and received charge of the Kanwan Prison on the 19th March 1913 after office hours

LIEUTENANT COLONEL J W CRIMMIN, IMS, and Lieutenant Colonel S H Burnett IMS, respectively delivered over and received medical charge of His Majesty's Common Prison, Bombay, and His Majesty's Heuse of Correction, Byculla, on the 20th March 1913 after office hours

LIEUTENANT COLONEL J G HULBERT, I M & Surgeon, was transferred from Muttra to Moradabad IMS, Civil

CAPTAIN H C BUCKLEY, I M S , Officiating Civil Surgeon, was transferred from Basti to Muttra

MILITARY ASSISTANT SURGEON L V JAENSCH, I S M D , Civil Surgeon, was transferred from Hardon to Basti

MAJOR T HUNTER, Civil Surgeon, Moradabad is granted privilege leave, combined with study leave and furlough, for a total period of nine and a half months, from the 20th April

HONORARY CAPTAIN J T PARKINSON, ISMD, Civil Surgeon, on return from leave is posted to Hardon

CAPTAIN N M WILSON, I MS, is posted to Dera Ghazi Khan as Civil Suigeon, relieving Captain R J Wells, I MS, appointed to be Deputy Sanitary Commissioner, Punjab

CAPTAIN A F BABONFAU, IMS, is appointed Plague Medical Officer, Jhelum

Major C S Lowson, I Ms, has been appointed Super intendent, Central Prison, Yaravda (Bombay), rice Major H J R Twigg, I Ms, retired

THE new Governor of Bombay has appointed Captain T C Lucas, PA, MB (Cantab), RAMC, to be Surgeon

MATOR W LAPSLEY, I MS, has been transferred as Civil Surgeon for Azamgarh to Bahrareh

CAPTAIN A W HOWLETT, I M S, Officiating Civil Surgeon, Mussoone, on being relieved, was placed on special duty at

In supersession of Notification No 933-II/192, dated the 28th February 1913, Captain A W Howlett I us, on completion of his special duty, to officiate as Superintendent, Central Prison, Barrelly, rice Captain W P G Williams,

CAITAIN H & BIOWN, IMS, whose services have been temporarily placed at the disposal of the U P Government, is placed on special duty at Meernt

CAPTAIN H HAILIIAN, IMS, made over charge of the duties of the Superintendent of Lyallpur District Jail to E Phillips, Senior Assistant Surgeon, on the afternoon of the 31st March 1913

THE undermentioned 4th Class Assistant Surgeons, having completed five years' service in that class to be third Class Assistant-Surgeons, with effect from the 4th March 1913—Benjamin Jasper Bouche Christopher Francis Henry Quick Richard Henry Francis Parkinson Charles William Shephard Aloysius Herbert Vivian Barboza William Kenneth Coombes Arthur Octavius Taylon Lewis Alexander Jacob Albert Glen Leslie Fraser Albert Glen Leslie Frasei Hugh Wiltshie Toussunt Feidinand Peterra Paul Veinon Casling Edward Richardson Henry Evelyn Beaumont McLenry Herbert Frederick Hogan

THE following promotion is made, subject to His Majesti 5

Approval — Second Class Assistant Surgeon Arthur George Brown to be Senior Assistant Surgeon with the honorary rank of Lieute nant vice Senior Assistant Surgeon and Honorary Lieutenant Arthur Wilhelm Truter, seconded for civil employment with effect from the 1st April 1913

THE undermentioned 3rd Class Assistant Surgeons, having completed seven years service in that class and passed the required departmental examination, to be 2nd Class Assist tant Surgeons, with effect from the 31st March 1913—

Francis Aloysius Beigin Patrick John McGrath Emanuel Antony Stevenage Vincent Joseph Lopez Hairy Victor James Thompson

THE following Lieutenants are promoted to be Capturs, I M S, with effect from 24th October 1912 —

Mozaffar Din Ahmed Kuteishi, and with effect from 29th January 1913

Rustim Hormasji Bharachi Rustim Holmasji Bhai ichi
Fiamioze Jamsetjee Kolipole
Edward Galwey Kennedy, MB
Robert Foliester Douglas MacGlegor, MI
Arthur Lewin Sheppard, MB
Paul Knighton Gilroy, MB
Joseph Arthur Alexander Kernahan
Maurice Lionel Corrie Irvine, MB
Einest William O Gorman Kirwin, MI
John Valentine Macdonald, MB
George Lawrence Duncan, MB George Lawrence Duncan, M B Anath Nath Palit, F R C S E Hubert Alan Hirst Robson, M B Kalyan Kumar Mukerji

Army Department Notification No 28', dated the 7th April 1911
Army Department Notification No 823 dated the 29th September 1911

to the 29th January 1908

WITH reference to the Notifications quoted in the margin, otifications quoted in the margin, the promotion to the present 1 and of Major Felix Oswald Newton Mell, 41 B, published in Army Department Notification No 65%, dated the 7th August 1908, 18 antedated from the 29th July 1908

Army Department Notifi-cation No 982, dated the 7th April 1911 Army Department Notifi cation No 822, dated the 29th September 1911

and until further orders

WITH reference to the Notifications quoted in the margin, the promotion to the present rank of Major George Browse, M.D., published in Army Department Notification No. 822, dated the those the promotion to the present rank of Major George Browse, M.D., published in Army Department Notification No. 86 dated the 2nd February 1912, is antedated from the 27th January 1912 to the

CAPTAIN J H MURRAY, IMS, Medical Superintendent Cellular and Female Jails, Port Blur, is appointed to act as Senior Medical Officer, Port Blur, in addition to his own duties, with effect from the forenoon of the 39th March 1913

MATOR J M WOOLLEY, I VS, Senior Medical Officer, Port Blan, is granted privilege leave for three months combined with furlough for five months, with effect from the forenoon of the 30th March 1913

27th July 1911

The services of Assistant Surgeon S. N. Morander of the Punjab Provincial Medical establishment, the placed at the disposal of the Chief Commissioner, Delhi, with effect from the date on which he assumed charge of his duties at Delhi

MAJOR H, M MACKENZIE, WB, IMS, is granted privilege leave for three months, combined with furlough for one year and four months, with effect from the 1st April 1913 or the subsequent date on which he relinquished charge of his duties as Medical Officer, Bahawalpur State

THE services of Captain H M Brown, MB, IMS, are placed temporarily at the disposal of the Government of Bihar and Orissa for employment in the Samtary Department

Major J Husband, Indian Medical Service, is appointed to officiate as an Agency Surgeon of the 2nd Class, and is posted as Civil Surgeon, Deta Ismail Khan, with effect from the 30th March 1913

CAPTAIN G L DUNCAN, I Ms, Specialist in Prevention of Disease, was appointed to, and held charge of the Brigade Laboratory at Banna from the 9th February to 6th March 1913 inclusive

CAPTAIN G HOLROYD, IMS, Officiating Superintendent of the Central Jan at Bhagalpur is appointed to act as Civil Surgeon of Bhagalpur, in addition to his own duties, during the absence, on 6 weeks' privilege leave, of Lieutenant Colonel J C S Vaughan, IMS, or until further orders

CAPTAIN J F JAMES, I MS, Officiating Civil Surgeon, Sibsigni, is deputed to Kasauli for a course of training in clinical bacteriology and technique at the Central Research Institute there

THF Governor General is pleased to accept the resignation by the Hon'ble Surgeon General Sir Charles Pardey Lukis, KCSI, IMS, of his office of Additional Member of the Governor General's Legislative Council (on going on leave)

IN exercise of the power conferred by section 10 of the Indian Councils Act 1861 (24 and 25 Vict, c 67), as modified by the Indian Councils Act. 1909 (9 Edw 7, c 4) and in pursuance of the provisions of Regulation XI (2) of the Regulations for the nomination and election of Additional Members of the Legislative Council of the Governor General of India, published under Notification No 61, dated the 14th November 1912 the Governor General is pleased to nominate Surgeon General Aylmer Martin Crofts, CIE, being an official, to be an Additional Member of the said Council, vice Surgeon Ceneral Sir C. P. Lukis, resigned

MAJOR W R BATTLE, Indian Medical Service, an Agency Surgeon of the 2nd Class, is granted privilege leave for one month and seven days, combined with furlough for five months and twenty three days with effect from the 31st March 1913, under Articles 233 and 308 (b) of the Civil Service Regulations

LIEUTENANT COLONEL V G DRAKF BPOCKMAN, Indian Medical Service (Bengal), an Agency Surgeon of the 2nd Class, is posted as Residency Surgeon, Mewai, with effect from the 31st Maich 1913

LIEUTENANT COLONFL J GARVIE I WS, was granted three months' privilege leave from 15th May, and Captain W J Collenson, I WS, acts for him as Civil Surgeon of Meet ut

THE following notice is from the Central Provinces

Privilege leave for two months under Article 260 of the Civil Service Regulations is granted to Military Assistant Surgeon J M Richardson Plague Medical Officer, Khandwa, with effect from the 15th April 1913 or the subsequent date on which he may be permitted to avail himself of it

MAIOR C F WFINMAN, I MS, recently committed suicide in London by jumping from an upper window. He took the degree of M B at Aberdeen in 1896, and entered the Service at the age of 27 on the 28th Junuary 1899. He went on leave in October of last year. There can be little doubt that Major Weinman's mind had become unhinged, the sudden death of his wife followed by the worry of the Minapore case certainly affected him. It will be remembered that Major Weinman was temporarily in charge of the Central Juliat Midnapore owing to the illness of the permanent incumbent in addition to his many other duties as Civil Surgeon of a large station. He was very hard worked and did his Juli work thoroughly and well, never sparing himself,

but he did not shine during cross examination in the subsequent political trials. The worry of these prolonged trials added to that of his domestic trouble must have seriously affected him and led to his sad and

We are glad to learn that Capt A J V Betts, MI I MS, of St George's Hospital, Bombay, is recovering from the recent murderous attack on him by an apparently instance servant

UNDER section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Lieutenant J. Robertson, IS M.D., Civil Surgeon, Narsinghpui, to the executive and medical charge of the Narsinghpui District Jail

LIAVE on medical certificate for one month and nine days and extraordinary leave without allowances for ten months and twenty two days, under Articles 336 and 339 of the Civil Service Regulations, is granted to Mr Rangnath Shiriam Jata. Deputy Superintendent of Police, in extension of the combined leave granted him by Order No 1039, dated the 24th May 1912

24th May 1912

First Class Military Assistant Surgeon R T Rodgers
Superintendent, Central Jail, Raipur, is deputed to undergo
a course of instruction in Clinical Bacteriology and Technique

Captain C C C Shaw, M D, I M S, Civil Surgeon, Raipin, is placed in visiting medical charge of the Central Jail Raipin, during the temporary absence on deputation of Military Assistant Surgeon R T Rodgers

LILUTLIMANT COLONII C F W EWENS, I MS, was grint ed combined privilege and special leave for 6 months from 1st May 1913

CAPTAIN H HALLILAY, I M S, is posted to Murice as Civil Surgeon from 10th April

MAJOR T G SWAN, I MS, was posted as Civil Surgeon to Dalhousie from 7th April

MR E PHILLIPS was posted to Lyallpui on 31st Maich as Civil Surgeon.

MILITARY ASSISTANT SURGEON G. W. CEARNS, ISMID, whose services have been placed at lthe disposal of this Government is appointed to officiate as Assistant to the Civil Surgeon Allahabad.

LIFUTENANT J S STUART MARTIN, WB, I MS, has been appointed to act as Civil Surgeon, Jacobabad, from the 16th February 1913, in addition to his own duties

Major W G Hamilton, I Ms. Superintendent, Central Jail, Dacci, was granted by His Majesty's Secretary of State for India study leave from the 27th August 1912 to the 24th February 1913

CAPTAIN H ENSLIE SMITH, I MS, was, on return from leave, appointed to act as a Civil Surgeon of the second class and was posted to Mymensingh, with effect from the after noon of the 4th April 1913, during the absence, on leave, of Captain 1) P Goil, I MS, or until further orders

MUHAMMAD ELRAHIU SUFI, BA, LRCPS (Edin and Glas), DPH (Edin), is appointed to be Deputy Sanitriy Commissioner, Dacca Circle, with effect from the forenoon of the 7th April 1913

The following appointments, postings and transfers are ordered in the Civil Medical Department, Burma —

Mr W D Jones, I M & S (Mad), LRCP & S (Edin), is appointed to officiate as House Surgeon, General Hospital, Rangoon, in place of Maung Aung Tun, MB, ch P (Edin), proceeding on leave

Rangoon, in place of blands from the proceeding on leave
Senior Military Assistant Surgeon and Honorary Captain
J F Current to be Civil Surgeon, Kyaukse, in place of
Mr W D Jones, LM & S (Mad), LRCP & S (Edin)
transferred

Civil Assistant Surgeon P C Roy, MB (Cal), is appointed, as a temporary measure, to officiate as Civil Surgeon Sagaing, in place of Senior Military Assistant Surgeon and Honorary Captain J F Curran, transferred, until the return of Second Class Military Assistant Surgeon C G Crow, deputed to Dehia Dun for training

DR F F FOY, MB, CM, DPH, Port Health Officer, Rangoon, has been granted by His Majesty's Secretary of State for India an extension of furlough for four months and ten days.

UNDER the provisions of Articles 260, 233 and 311(b) of the Civil Service Regulations, privilege leave for twenty nine days, and furlough on medical certificate in continuation thereof for a total period of one year was granted to Lieute nant Colonel J. Penny, I. v.s., Civil Surgeon, Bassein, with effect from the 25th December 1912

UNDER the provisions of Articles 260, 308(b) and 233 of the Civil Service Regulations, privilege leave to the amount due and furlough in continuation thereof for a total combined period of one year and six months is granted to Captain R Kelsall, I M S, Civil Surgeon, Thayetmyo, with effect from the 14th April 1913, or the subsequent date on which he may any homself of the privilege leave. avul himself of the privilege leave

THIRD Class Military Assistant Surgeon A E Matheus, Is MD, whose services have been placed temporarily at the disposal of the Assam Administration, is appointed to hold medical charge of the Mokokchang Subdivision in the Naga Hills district

CAPTAIN N SODHI, IMS, is transferred to Gingaon as Plague Medical Officer

THE Civil Surgeon of Bueilly to hold visiting medical charge of the Budaun district, rice Major H W Illius, transferred

THE services of Captain W P G Williams, IMS, Officiating Superintendent, Central Prison, Baierlly, are replaced at the disposal of the Government of India, Home Department, with effect from the 1st March 1913

THF services of 3rd Class Assistant Surgeon H B Blaker, ISMD, are placed at the disposal of the Government of Assim, for civil employment, with effect from the 10th March 1913

THE following medical men passed the Examination of the London School of Tropical Medicine (41st session) -

Gill, Captain C A, INS, WROS, With distinc Connoi, Captain F P, IRC (Eng.), tion Houlton, Miss C L, M B, B S (Lond)

Easmon, M C F, M B, B S (Lond), M R C S, L P C I

Boyd, J R (Colonial Service) M B Ch B (Edin)

Layman, Miss E M (Colonial Service), M B, B S (Lond)

O Connoi, F W, M R C S, L R C P

Haiper, Miss F M, M B, B Ch (Edin), D P H (Camb)

Doble, F C (Colonial Service) M R C S, L R C P

McDonald, Miss J, M B (Toronto), M R C S, (Eng)

Bit, D (Colonial Service), M, B, B S (Duiham)

Meade King, W T P (Colonial Service), M R C S, L I C P

Hamilton, Majoi J A, I M S, M B, F R C S E

O'Flynn, Miss S M B Ch B (Edin)

Beckett, G P G (Colonial Service), M D, B C H, B A O,

M (Dub) TMS M (Dub)

McLein, Miss L S, MB, ChB (Colonial Service)
Watkins, A P (Foreign Office), MRCS, LRCP
Morgan, J F H (Colonial Service), MRCS, LRCP
Lewis, W E (Colonial Service), MB, ChB (Edin)

MAJOR F N WINDSOR, MB, IMS, Chemical Examinei, Bengal, and Professor of Chemistry in the Medical College, Calcutta, is granted combined leave with effect from the 1st May 1913, viz, privilege leave for two months and eight days, with study leave for seven months and twenty seven days, and furlough for nine months and twenty two days, in continuation

RAI CHURI LAL BASU, Bahadur, First Assistant Chemical Examinet, Bengal, is appointed to officiate as Chemical Examinet, Bengal, and Professor of Chemistry in the Medical College, Calcutta, during the absence on leave of Major F N Windsor, MB, IMS, or until further orders

CAPTAIN J W H BABINGTON, IMS, is appointed to be Specialist in Ophthalmology, with effect from 20th Maich

CAPTAIN D G COOPER, IMS, is appointed to be Specialist in Electrical Science, 5th (Mhow) Division, with effect from 21st March 1913

Major R H PRICE, INS, is appointed to be Specialist in Advanced Operative Surgery, with effect from 25th Much 1913

LIEUTEN ANT H G O MILLS, 15 M D, Civil Surgeon of Singhbhum, 19 appointed to act until further orders as Civil Surgeon of Sanbalpur

CAPTAIN L COOK, I WS, at present employed on plague duty under the Sanitary Commissioner in Biliar and Orissa is appointed to act until further orders as Civil Surgeon of Champaran, suce Major I I Urwin, FPCS, IMS, granted furlough
2 This cancels Notification No 3539 M

2 This cancels Notification No 3539 at dated the April 1913, appointing Captain Cook, Officiating Civil Surgeon

MAJOR S ANDERSON, I MS, Officiating Civil Surgeon of Sambalpur, is appointed to act until further orders as Civil Surgeon of Purner

THE following appointments and postings are ordered in the Civil Medical Department, Burma -

Senior Military Assistant Surgeon and Honorary Lieute nant W St M Hefferman is deputed to Kasauli for training in Clinical Bacteriology and Technique

Civil Assistant Surgeon Ranjangam Sixa Subramanii Aiyai LRCP & S (Edin), LM, (Dub), is appointed to officiate as Civil Surgeon, Yamethin, during the absence of Senior Military Assistant Surgeon and Honorary Lieute nant W St M Hefferman

UNDER Rule II of Article 137 (h), Civil Account Code, privilege leave for one month 15 granted to Senior Military Assistant Surgeon and Honorary Lieutenant L K Rodinguez, L M & S (Mad), L R C P & S (Edin), Civil Surgeon, Katha, with effect from the 13th March 1913, after noon

MAJOR W COPPINGER, IMS, is temporarily transferred from Bengal to act as Civil Surgeon of D brugail, rice Major Leventon, I M S, granted furlough

CAPTAIN H DUTTON, I MS, is temporarily transferred to Delhı

# Motice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, The Indian Medical Gazette, c/o Messis Thacker, Spink & Co , Calcutta

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moscope Press Col Elliot's Sclero corneal Trephining 7s &d The Ophthalmoscope

Piess

Medical Annual, 1913 J Wright & Sons
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Hannas studies in Small pox and Vaccination J Wright & Sons
W T Prout Elementary Hygiene for Tropics, rd Edition J & A

Churchil
W E Alderson's Dental Anasthetics, 2nd Eartion J Wright & Sons
The School Jental Society's Report, 1912 13 (is not)
Green & Green Armytage, Children in India (5th Edition) Thacker
Spink & Co
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# LETTERS, COMMUNICATIONS, &c, RECEIVED FROM -

Lt Col W D Sutherland, IMS Calcutta, Major C Lane, IMS Berhampore, Major R Baird, IMS, Luchn W, Dr Mallaunab, Hyde rabad, Capt Heffernan, IMS, Madrus, Dr Macaulay Seremban F M States, Major OG Laloi, IMS, Burm, It Colonel C C Birry IMS, Rangoon Capt V Nesfield, IMS, Agra, Capt Overbeck Wright IMS, Agra It Col P O Gorman, IMS, Janasi, It Col C R M Green, IMS, Calcutta, Rev, S Sierp, S I Bombay

# Original Articles.

GLEANINGS FROM THE CALCUTTA POST-No VII, DISEASES MORTEM RECORDS OF THE NERVOUS SYSTEM

BY LEONARD ROGERS, CIF, MD, FRCP, IMS,

Professor of Pathology, Calcutta

DISEASES of the nervous system were primarily responsible for 5.2 per cent of 1,000 recent postmortems at the Calcutta Medical College Hospital, including 0 5 per cent of tubercular meningitis, which has already been dealt with in the second paper of this series They may be conveniently considered under the following headings Inflammatory diseases, nearly all different forms of meningitis, (2) Vascular lesions such as cerebral hemorrhage, thrombosis and embolism, and (3) Tumours, etc.

#### 1 -MENINGITIS.

It is only during the past eleven years that bacteriological examinations have been at all regularly performed at the Medical College, so the last 1,000 post-mortems furnish the most accurate information regarding the incidence of the various forms of acute meningitis as shown in Table I The cases in the whole 4,800 post-mortems are also given, those in which lobar pneumonia was also present having been classed as pneumococcal in origin

TABLE I The prevalence of different forms of meningitis

					v	
	1,000	RFCFNT	Р Мя	TOTAL 4,	500 P Ms	
	Num	ber .	Percen	Num	Percen	
	Pri Secon mary dary		tage	ber	tige	
Tuberculai	5	2	07	28	0 59	
Pneumococcal	11	2	13	42	0 87	
Streptoroccal	2	1	03	3	0 06	
Septic		1	0.4	10	0 21	
Cause	3		03	56	1 16	
Chionic	1		01	2	)	
Total	23	\ <u>-</u>	31	141	0 04	
		1	<u> </u>	141	2 94	

The most striking points brought out by the ligures of Table I are, firstly, the great frequency of during the last eleven jens of pneumococcal

meningitis and the absence of that due to the diplococcus of Weischelbaum, the causative organism of cerebro-zpinal fever. The latter disease does occur in Calcutta not infrequently among the coolies in the emigration depôts, where it has been investigated by Lieutenant-Colonel E H Brown, 1 MS, and myself, and cases have also been occasionally verified in the Medical College Hospital by finding the diplococus of Weischelbaum in the cerebro-spinal fluid Nevertheless, it is obtained by lumbar puncture clear that it is much rarer than the pneumococcal form in Calcutta, for the coole depôt cases are probably largely due to imported infection distinction is of the greatest practical importance now that Professor Flexner has made a serum which is highly efficient in the case of time cerebro spinal fever, although not so in the pneumococcal form He has kindly sent me some for use in the former disease, but it is clear that the form present must be ascertained by lumbar puncture, and microscopical examination to determine the organism present before the serum treatment can be used effectually in acute meningitis of this as of other countries It is also to be hoped that a serum against the more prevalent pneumococcal form may be made on similar lines to Professor Flexuer's valuable production

Doubtless most of the cases in the earlier records were also pneumococcal in nature, for it will be seen from Table V that their seasonal incidence was precisely similar to that of the recently verified cases of this disease. information regarding the prevalence of true cerebro-spinal fever in India will be found in my book on Fevers in the Tropics

Primary streptococcal meningitis is of interest on account of the very acute course it runs, death having taken place within a day or two of the appearance of definite symptoms with only scanty inflammatory effusion in the cerebral membranes, just as in the fulminant form of cerebro-spinal fever.

Staphylococci were found both microscopically and in pure culture in the fluid obtained by lumbai puncture in a patient who ultimately made a good recovery.

Secondary septic meningitis in the recent case classed as streptococcal was a terminal complication of kala-azai In the other nine cases it was secondary to middle ear disease in three, a terminal infection of kala-azar in four, in two of which cancium ous had spread to the base of the brain, in two cases pus was also present in the knee-joint, and in a third there was suppuiation in a ovarian cyst

Chionic meningitis was met with twice one case it had caused obstruction of the connection between the fourth ventucle and the spinal membianes, with acute dilatation of the ventricular cavities of the brain in an European male aged 29, the exact cause of the condition not having been made out,

Post-mortem —The pneumococcal form was found to affect chiefly the superior surface of the brain, where a thick layer of purulent fluid is found infiltrating the pia-arachnoid membrane, while the base of the brain is usually less affected and the spinal cord least of all. On the other hand, in the cerebro-spinal fever due to Weischelbaum's diplococcus the whole of the surface of the brain and cord is more uniformly involved, while the tubercular form affects chiefly the base of the brain

# AGE, SEX AND RACE INCIDENCE OF ACUTE MENINGITIS.

The age incidence of acute meningitis cases is shown in Table II, together with those for cerebral hæmorrhage and other vascular lesions, which will be dealt with in the second section of this paper. On comparing the ages of the meningitis cases with those of the whole of the post-mortem subjects, as shown in the last column of the table, it appears that the acute inflammation of the cerebral membranes was most frequent in the third decade of life, during which 45 75 per cent. of the cases occurred against 35 3 per cent of all diseases, while it was in corresponding defect in the other decades—

Table II.

Age Incidence of Diseases of the Nervous System

21ge Metalence of District of the										
Abes	Primary Meningitis	(Non Tubercular )	Cerebral Hemorrhage		Thrombosis			Other Nervous diseases	Total Nervous diseases	All diserses
	No	%	No	%	No	%	No	%	%	%
0-10	4	50				}				25
11-20	6	75	1	31	1	59	1	77	67	13 4
21-30	39	48 75	5	15 6	2	11 8			67	35 3
31-40	17	21 25	5	15 6	4	23 5	1	77	16 7	27 8
4150	10	12 5	9	28 3	5	29 4	s	61 5	43 3	13 3
5160	4	50	10	31 25	3	17 6	2	154	167	58
60	}		2	6 25	2	118	1	77	100	19
		<u></u> -	 		<u> </u>					
Total	80	}	32		17		13			

The sex incidence of meningitis and of vascular lesions of the brain respectively are shown in Table III, from which it appears that there was no special incidence of meningitis in either sex, the figures being within one per cent of the normal in each—

TABLE III

Set Incidence of Diseases of the Nervous System

	Men ingitis		Cerebral Il emor thage		Thrombo		diseases All	
	No	%	No	%	No	%	No	%
Males	62	77 5	19	61 3	24	80 0	'	75 1
Females	18	22.5	12	38 5	6	20 θ		21 9

The race incidence of meningitis and of vascular lesions of the brain respectively are shown in Table IV—

Table IV

Racial Incidence of Diseases of the Nervous

System

		en itis	He	ebial mor age	Gra Kid	nular ney	Cer	om s & obia) ening	A dise	
	No	%	No	%	No	%	No	%	Хo	%
Hındus	60	75 U	21	67 7		62 0	20	66 7		67 4
Maho medans	14	17 5	4	129		20 4	6	20 0		20 5
Eui opeans	4	50	5	16 2	í	15 4	4	133		82
Others	2	25	1	3 2	<i>}</i>	22				39

It thus appears that 75 per cent of the meningitis cases occurred in Hindus against 67 4 per cent of that race in the total records, while only 17 5 per cent were in Mahomedans against 20 5 per cent of that race, so that the fatalities from this disease were somewhat in excess among Hindus in proportion to their numbers—

TABLE V
Seasonal Incidence of Acute Meningitis

	Pneumococcal form		Other-	
Cold season (Nov to Feb )  Hot season (Man to June)  Ramy season (July to Oct )	No 18 7 5	% 60 0 23 3 16 7	No 22 11 5	% 59 0 28 2 12 8

In Table V showing the seasonal incidence of acute meningitis, the pneumococcal forms cases are given separately from the remaining unclassified ones, which serves to bring out the very similar distribution of both groups. This has been already referred to as strongly indicating that most of the earlier cases without bacteriological examinations were almost certainly also mainly pneumococcal in origin. The

fact that they occurred most frequently in the cold weather months and least so in the rainy season, in a similar but more marked degree than lobar pneumonia itself, as pointed out in No V of these papers, also confirms this view

# II.—VASCULAR LESIONS OF THE CENTRAL NERVOUS SYSTEM

The vascular lesions of the central nervous system are shown in Table V both for 1,000 recent post-mortems and for the total 4,800 subjects

Table V
Vascular Lessons of the Gentral Nervous System

	1,000 RECENT P Ms		'ютац 4,800 Р Мв	
	No	Percent age	No	Percent age
Intra cerebral hæmor rhage Sub dural hæmorrhage Thrombosis of cerebral	6	0 6	34 7	0 71 0 15
arteries Embolism of cerebral	7	07	19	0 40
arteries Hemiplegia with cerebral	1		5	0 25
softening. 2 cause	7	07	12	0 25
Total	20	20	77	1 61

Cerebral Hamonhage—The first point of interest in Table V is the comparative rarity of cerebral hamonhage as a cause of death, only 0 6 to 0 7 per cent of the total mortality having been thus produced. This small proportion is largely due to the average low age incidence of the total subjects already pointed out, but is doubtless also closely related to the much lower blood-pressure of natives of India as compared to that of Europeans

The Age Incidence is shown in Table II, from which it will be seen that 29 4 per cent of the patients were over 50 years of age against only 7 4 per cent of the total subjects, while between 41 and 50 the incidence of cerebral bæmorihage was twice the normal rate. This is a somewhat early age for numerous cases of cerebral bæmorihage, and is no doubt associated with the early appearance of degenerative lesions of the arteries in natives of India which has been demonstrated in the third paper of this series.

demonstrated in the third paper of this series

The sex incidence of cerebral hæmoribage is shown in Table III, and it is remarkable for the fact that 385 per cent of the cases were in females, against only 219 per cent of women in the whole post-mortem series. This very unexpected excess in women is explained by the fact which has been brought out in No VI of this series of papers, namely, that granular kidney was also more frequent in women than in men in nearly the same proportion (351 per cent) as cerebral hæmoribage.

The frequency with which granular kidney and cerebral atheroma were noted in the subjects of cerebral homorrhage is shown in Table VI

### TABLE VI

Frequency of Granular Kidney and Atheroma of Cerebral Arteries in cases of Cerebral Hamorrhage

Early granular kidney Marked granular kid ney Kidneys normal	5 9 15	Atheroma of cerebral arteries
---	--------------	-------------------------------

Thus in almost half the cases the kidneys showed some degree of granular change, usually of a marked nature, while in the remaining half in which the kidneys were normal in almost two-thirds atheroma of the cerebral arteries was recorded, two-thirds of whom were fifty years of age and upwards. It is clear from this that contracted granular kidneys and atheroma of the cerebral arteries are the two great factors predisposing to intracerebral hæmorrhage in natives of India, who form the great majority of the patients.

The Racial Incidence is shown in Table IV. The most noteworthy feature is that the percentage of cerebral hæmorrhage cases was twice as great among Europeans as the proportion of that race in the total series This high incidence is associated with an equally high proportion (150%) of granular kidney in European subjects, both being related to the much higher proportion of this race over the age of 50 as pointed out in the paper on kidney diseases, No VI of The normal blood-pressure of this series Europeans is also from 10 to 20 millimetres over that of Indian races, which may also predispose them to hamon hages Mahomedans show a low incidence of cerebial hæmorihage, cause of which is not obvious as their average age is somewhat higher than that of Hindus who do not suffer so much from this affection.

The position of the homorrhage was in the great majority in the basal gaugha or their neighbourhood, producing hemiplegia, and they were equally distributed between the two sides of the brain. In two cases the lesion was in the cerebellum, including one in a Hindu male of twenty-two. Sir William Osler mentions two cases of cerebellar hæmorrhage in young girls. One of my cases was in an European male, aged forty-one. In a Hindu male of fifty the hæmorrhage was in the pons, the only one in the series. The cortical part of the brain was involved in four out of 31 cases, this being an occasional terminal complication of kala-azar

Thrombosis of one or more of the large arteries at the base of the brain was recorded in 17 cases, while embolism was found only 5 times. In addition to these hemiplegia due to softening, in which the exact nature of the yascular lesion was not noted, accounted for 12

cases, in almost all of which thrombosis was the most likely cause, as no obvious condition likely to produce embolism was present Takıng the cases of thrombosis and those of softening probably due to thrombosis together, the cases were slightly more frequent in males than in females in proportion to their total numbers, as shown in Table III The racial incidence was about normal for Hindus and Mahomedans, but excessive among Europeans as shown in Table The figures of the age incidence shown in Table II indicate that these vascular lesions were comparatively rare below the age of thirty, of normal frequency in the fourth decade of life, and much above the average after the age of forty, namely, 58 8 per cent against 23 1 per cent of subjects The largest number of cases occurred between the ages of 41 and 50, or a decade earlier than was the case with cerebral hæmou hage.

The vessels blocked by thrombosis were one of the middle cerebrals six times, the basilar artery in six, one or both the internal carotids in three, and a posterior cerebral artery in one frequency of complete thrombosis of the basilar artery in this series is of great interest several such cases which I have seen the vessels showed clear evidence of syphilitic disease, and there can be no doubt that neglected syphilis is responsible for the great majority of these frequent cases of thrombosis of the large vessels at the base of the brain, and probably also for most of the other cases of hemiplegia due to softening of the basal ganglia in which actual gross blocking of the vessels was not noted, but in which smaller arteries may have been involved This view is supported by the fact that gummata in other organs were found in several of the cases In two instances cerebral thrombosis occurred during convalescence from cholera, so such a lesion may account for some of the unexpected and disappointing deaths after apparent recovery from the acute stage of this grave disease

Embolism, as we have seen, is very much rarer than thrombosis as a cause of fatal hemiplegia in Calcutta. This is readily explained by the extreme rarity of rheumatic endocarditis, as pointed out in the third of this series of papers. Of the five cases in the 37 years records two were secondary malignant endocarditis and one to large vesitations on the mitral valve, probably of the same nature. One was a late complication of cholera, while in the remaining one the precise cause of the embolism was not ascertained.

The great frequency of syphilitic thrombosis as a cause of hemiplegia and the extreme rarity of embolism, apart from such an obvious and fatal disease as malignant endocarditis, is of great practical importance now that the recent improvements in the diagnosis and treatment of the disease make the prognosis much better than it was a short time ago, and should result in some of these cases being saved from death and serious life-long disablement due to cerebral syphilis

# III —REMAINING DISEASES OF THE NERVOLS

The remaining fatal diseases of the nervous system are of much less frequent occurrence and require but brief consideration here. The most important are shown in Table VI

TABLE VI.

The remaining fatal diseases of the nervous system

	IN 1,000 RECENT POST MORTENS IN THE TOTAL 4,800 POST MORTENS			
	No	Pei centage	No	Per centage
Gummata Tubercular tumours Other tumours Cerebral abscess Epilepsy Paraplegia	1 3 1 2 2	01 03 01 02 02	14 4 12 3 1	0 29 0 05 0 25 0 06 0 05 0 05
Other diseases Total	10	10	53	1 10

Cerebral tumours form about half the cases in Table VI, including gummata, which formed half of the cerebial tumous in the full series Even this is doubtless an under-estimate of the number of syphilitic tumours of the brain, as this organ was frequently not examined during recent years, while all the gummata noted in the records are probably not entered in the postmortem diagnosis, and so may have escaped being indexed This is boine out by the fact that almost all the cases of gummata of the brain are recorded in the carefully indexed first four volumes of the post-mortem reports during McConnell's time as cuiator of the museum and very few in the subsequent six volumes. The figure in Table VI should therefore be doubled to give the probable true incidence of this lesion of the brain, which would give 0 6 per cent The frequency of this destructive syphilitic affection of the brain emphasizes the importance of early diagnosis and treatment, as already pointed out in dealing with the equally important specific Of the thrombosis of the cerebial vessels remaining tumours tubercular formed one fourth and nearly all the remaining three-fourths appear from the descriptions to have been glioma, the three in the recent series having been found to be so by microscopical examination

Cerebral abscess was very rarely met with, namely, three times in 4,800 medical cases. One was secondary to middle ear disease, one was apparently broken down gumma in the brain, a gumma being also present in the liver, while the remaining one was in the left occipital lobe near its inner surface and contained sterile pus and blood clots, so was apparently the result of the softening of a localised hæmorrhage

In the cases of epilepsy no cause was found postmortem except in one case with adhesions between the dura mater and the anterior fossa of the skull

Of the remaining cases Landiy's paralysis was the cause of death in two, and in a third there was general paralysis probably of the same origin. Bulbar paralysis, heat-stroke and "serous apoplexy" each accounted for one fatality

Paraplegia was the cause of death in nine cases. It was due to gummata or syphilitic pachymeningitis in three, caries of the spine, lymphadenoma, and cancer of affecting the vertebral column in one each, and in the remaining two the origin was doubtful. Here, again, it is the syphilitic cases which are best worth bearing in mind on account of the possibility of great benefit being derived from timely treatment.

# SOME SIGNS OF TYPHOID FEVER AND ITS TREATMENT

Bi P K CHITALE,

Major, ius,

Civil Surgeon, Damoli, C P

Tiphon fever as seen in Damoh does not always show the classical signs and symptoms but it differs to some extent in its mode of onset, character of temperature and intestinal signs. This fever is called in this district "Madhura"

Fever is often accompanied with chills and rigours and lasts more than three weeks. Temperature in third week may become intermittent or come down to normal gradually. Sometimes it remains steady in the third week and comes to normal in third or fourth week. During the course of the disease temperature sometimes comes to normal in second week, but again rises and lasts for two or three weeks more.

Temperature in first week is generally high and rises in a step-like manner for two, three days reaching 104° or 105° with morning remission of 1° or 2° Frontal headache is pretty constant

Again, instead of diarrhea, patients often complain of constination but distension of abdomen is always present

Exuption does not always appear; but when it comes on, it often appears on 9th or 10th day and lasts for five or six days. It appears generally on abdomen but often comes on chest thighs and neck also. Spots are slightly raised and dark looking and remain visible for two, three days or more. In some cases there is no exuption

This fever is frequently confounded in this district with malarial, remittent, and diagnosis becomes difficult as blood films show inclarial parasites under the microscope

I give below some notes on 83 cases of typhoid fever as came under observation during the last

In twelve case- fever resembled "Para Typhond more or less Patients had severe

frontal headache and bronchits while temperature rose to 104° in a step-like manner by the end of first week with a morning remission of 1° or 2° and came to normal on 14th or 15th day. Abdomen was distended and in several cases there was diarrhæa, urine gave diazo and methylene blue tests. Malarial parasites were absent.

Temperature—In more than half the cases it showed a gradual rise and fall. Some cases began with a sudden rise of temperature, in seven cases lever was accompanied with chills and rigours

One chart shows that the temperature came down to normal on 11th day. Another indicates inegular type of temperature, and that the temperature became sub-normal on 18th day. A third points to death by hyperpyrevia. A fourth shows death by perforation.

In nine cases temperature rose to 106° with a morning remission of 1° or 2° and came to normal in fourth week

In six cases temperature came down to normal during the course of second week but rose again and lasted for three weeks more

In four cases it showed no decline, and death occurred through hyperpyrexia.

Hyperpyrexia was noticed in six cases. Temperature began to rise at the end of second week and continued, proving fatal in fourth or fifth week.

Typhoid rash—More than half the cases showed eruptions in the second week. In some they were present on the chest and lower part of back as well. The spots looked oval and slightly raised and dark in colour. They disappeared in two, three days but remained persistent in several cases for about a week.

Gurgling in the Iliac fossa—This was noticed in some cases but tenderness in that ingour with distension of the abdomen was common.

Bronchitis — This was of acute kind in almost all the cases

Pneumonia —This occurred in six cases in second of third week of the disease. It was either due to inflammatory process of to hypostatic congestion. Cases of inflammatory pneumonia proved fatal through failure of heart. Some degree of hypostatic congestion of the lungs was present in almost all the cases in the third week which cleared up with the general improvement and fall of the temperature.

Drumben —This was present in large number of cases. Stools were liquid and light yellow pea-soup like. Reaction was alkaline but in several cases there was construction instead. Drambea usually began in second week and lasted in some cases till the end of the third. Temperature varied with the number and character of the motions.

Pulse—It was slow and small from the beginning—It became still slower and weaker in the second week, and in fatal cases it became feeble and intermittent and finally failed

Delinium—It was present in almost all the cases in the second week

Tongue—It was covered with thick white fur but cleared up in the second and third week leaving a brownish white fur in the middle

- 1 Complications Hæmorrhage in the second week was not so dangerous as in the third
  - 2 Perforation was noticed in three cases
  - 3 Inflammatory pneumonia in-six

Diagnosis —This fever often resembled malarial iemittent  $\operatorname{Blood}$ showed malanal parasites while the patients developed signs of typhoid fever But in typhoid, temperature rose in a step-like manner day by day for three, four days with a moining remission of 1° or 2° Malarial remittent fever began with a sudden rise reaching a maximum of 104° or 105° within few hours and patients often had bilious vomiting

- (2) In Typhoid cases superficial abdominal reflex was absent
- (3) Urine gave diazo leaction in the early stages of the disease
- (4) Methylene blue test was also employed Urine gave green colour in the beginning of the disease, aqueous solution of methylene blue 1 in 1,000 was used
- (5) Thin blood films were prepared and blood examined after staining with Louis Jenner's Methylene blue Eosine mixture. The organism was detected in several cases stained blue.
- (6) Sedimentation test according to Messis Parke, Davis & Co's Agglutometer No 2 was also tried. In several cases it gave positive results

Treatment —Successful treatment depended on early diagnosis Dietetic treatment was found most useful and important

Boiled cow's milk diluted with water or with bailey or lime water was given in almost all the cases. When it did not agree it was peptonized by adding a little of liq pancreaticus

To prevent the formation of large curds one ounce of the following mixture was added to a pint of diluted boiled milk

Soda Bicaib 3 oz Sodium Chloride 60 grs Aqua 12 ounces

The milk thus prepared was slightly saltish but agreed well. In some cases half a drachm of sanatogen was added to boiled milk to increase its nutritive value. It was easily absorbed. Addition of little cocoa, coffee, or tea did not derange the digestion.

When milk in any form was not digested a pint of whey, with little cream and one drachm of sanatogen was readily digested and assimilated

It was of use in the early stages of typhoid. Three pints of this prepared whey was found adequate in case of adults.

Thin rice gruel in diluted whey sustained the strength and agreed with the patient in the second week

Little cream and chicken soup was also easily absorbed, but it excited diarrhea in some

One tablespoonful of palatable peptone twice a day (a special preparation of Messrs Parke Davis & Co) served as food and aided digestion

Fasting treatment was followed for three, four days, in suitable cases with benefit. It prevented distension of abdomen, checked diarrhæa and brought down fever. In some cases white of egg in diluted boiled milk gave good result.

Divids —White of two eggs mixed up with half a pint of water with little lime juice and sugar made a pleasant drink

Thirty drops of dil hydrochloric acid mixed with one drachm of glycerine relieved thirst and so also lime juice, lemonade, and oranges Cooled boiled water or barley water proved also useful in allaying thirst

Antipyretic treatment —Quinine was given in large doses but failed to bring down the temperature

Two drops of oil of cinnamon every four hours reduced the temperature and produced sleep

Chlorinated quinine mixture, according to Dr Yeo, was tried It removed bad smell from the stools and reduced the temperature to some ex-

Hyperpyrexia —It was treated with cold water treatment

- (1) Sponging the body with cold water
- (2) Cold baths in suitable cases
- (3) Wrapping the body with sheet wrung out of cold water
- (4) Wrapping wet cloth to the head or putting the patient on a wet sheet

Constrpution —It was present in more than half the cases When it remained persistent stool smelt badly

Dranhea—(a) 3th grain of cyanide of mercury three times a day altered the character of the motions and changed their colour

(b) Calomel in 10th grain doses every two hours in suitable cases checked diarrhea and prevented fermentative action. Stools changed from light yellow colour to a dark brown in two three days. It also reduced the temperature

This was followed by 10 giains of sulphocarbonate of soda three times a day in case of adults. It checked diarrhoa and removed the bad smell

(c) Bismuth subgallate in 15 giain doses in adults was useful in checking diarrhæa and hæmoirhage

(d) Alsenite of copper in minute doses prevented decomposition, removed the bad smell and checked the frequency of motions

In some cases diarrhea remained persistent after the temperature came down to normal A suitable light diet and a small dose of castor oil emulsion checked it

Adienalin chloride sol 1 in 1,000 (Parke Davis & Co's preparation) checked hæmorihage in typhoid stools raised the blood-pressure and improved the pulse Peritoritis was noticed in three cases. Treatment was mainly symptomatic

### SALVARSAN ON TEA ESTATES \*

BY DR J A VALENTINF

Baryuli, Assam

THE President and Gentlemen, I have to thank you for the privilege of reading a paper before you to day and ask for your indulgence in listening to a short account of my experiences with salvarsan, which I have some distidence in bringing before you, as I feel that I have but little matter on this subject to announce other than what has been already published in the medical literature of recent days. It may, however, interest you to hear the experiences of a colleague in working with this potent diug in the same climate and under the same mofussil conditions under which all of us are work ing, that is, without the benefit of a well fitted hospital or the aid of a staff of skilled assistants and nuises Since February 1911, I have administered salvarsan in 67 cases by the subcutaneous, intramuscular and intravenous methods, and neo salvarsan in two more on the In that month Feb 11 stimulated by the wonderful accounts of salvarsan which were appearing everywhere in medical literature, I ventured on an intravenous infusion of the drug in a case of broken down fungating gumma on the tibia in a native female I followed the method recommended by the makers in preparing the solution, that is 6 gram of salvarsan was mixed with about 30 grams water, some 20 m of a 15 % solution of Na O H was added and the whole made up to 300 ces of normal saline. The resulting fluid was I confess not perfectly clear which the discoverers state that it should be, it was infused into the left median basilic vein and distressing symptoms at once appeared. The patient's respirations became embariassed, the temperature rose to 102° F, convulsive attacks succeeded after some time and the patient died in collapse after ten hours

As distilled water was not available ordinary boiled well water was used. The sod chlor was specially purchased as chemically pure. I mention this case particularly as it shows how very careful one must be in preparing the solution for the intravenous method, is I have little doubt that the disappointing result in this case was due to the presence of solid particles in the fluid infused into the veins In subsequent cases where a perfectly clear solution was used in the intravenous method no bad symptoms ensued. This untoward event deterred me from using the drug for some time, however after two months a second series of cases was treated, but the intravenous method was abandoned for the subcutaneous of intramuscular In April 1911, and following months, 5 cases were treated intramuscularly by the following method Half a dose or 3 gram of salvarsan was dissolved in pure methyl alcohol and diluted up to 10 ccs normal saline solution and injected into a muscle The first case was a chronic ulcer of the heel and the result was quite inconclusive the ulcer

remained unaffected, so that it was probably not

was given to a chronic syphilitic with rupia of cheeks, nose and painful ulcerations on the inside of the lips about 3 grain was given. The woman was in an extremely bad condition, very anomic, and unable to walk the result was good. The lesions healed up and her anomia improved so much that she went to work. In March 1912, the same symptoms excepting the anomia having recurred, she was given \( \frac{1}{4} \) dose hypodermically, but was not much improved as regards skin eruptions, but she remains strong and well otherwise. The smallness of the dose was due to a desire to avoid any risk and hence probably the incompleteness of the cure

Female with child at breast, she had Case No 4 syphilides on her forehead and corners of her mouth, the child had anal condylomata and dactylitis and swellings on both insteps which seemed gummatous. The mother was treated with \( \frac{1}{2} \) dose intramuscularly in the right buttock Her symptoms rapidly disappeared and the child was also cured within two weeks apparently through the mother's milk In Martindale and West cote's book "Salvarsan" the explanation of the cure of the child in such cases is sui mised to be as follows the sudden killing off of the spirochætes sets fiee a large quantity of endotoxins. This would produce antitoxins which may be carried over in the mother's milk and so act on the child A suggestion has been made that syphilitic mothers should, therefore, be injected with salvarsan and nurse their children, or if this is not practicable, they should obtain a syphilitic wet-nuise who had been recently injected with salvarsan

Case No. 5 was a man with yaws all over his face which was like a mask of yellow crust, his body also was covered with yaws. A full dose was administered intiamuscularly as above in the left buttock and the effect was extraordinary. Within 24 hours the yaws showed signs of shrinking, in a week they had shrivelled up and turned black. In three weeks there were only pigmented areas to show where the yaws had been. This result was so remarkable that it is much to be regretted that the patient died some two months afterwards of extreme anima, a disease from which he had suffered all through, this may have been the cause of death apart from the action of the salvarsan, but another explanation which implicates the drug, suggests itself, namely, that the destruction of myriads of spirochete refringences may have liberated too great a quantity of endotoxins for the organism to deal with and so caused the animal

Case No 6 A case of a cool e unable to work from yaws in the axilla was completely cured by } dose given as above in the left buttock

Considerable difficulty was found in preparing the solutions for injection, solid particles would not dissolve and blocked the needles, so that the next series, cases No 7 to No 19 were treated by suspensions in olive oil I will not detain you by detailing the cases The immediate result in all syphilitic cases was the removal of the outward signs of the disease, though the dose was often as small as  $\frac{1}{2}$  of the full dose Cases of yaws responded in the same manner Some cases relapsed and were treated again in the same manner or later on by the intravenous method The olive oil suspensions gave a good deal of trouble, lumps of salvarsan formed in it and blocked the needle and the pain was extremely severe, so that both in the difficulty of making the injection, and the severity of the pain this method offered no advantage over the watery solu tion The olive oil was laised to a temperature of 350°F immediately before operation. The syringe was filled and emptied several times with the oil at this temperature to sterrlise it Great care must be taken to have the syringe quite dry, on one occasion a drop of water from the syringe was injected into the hot oil, the enormous expansion of the steam from the drop caused an explosion which flew all the oil out of the

<sup>\*</sup> Read at meeting, Assum Branch of British Medical Association, Jan 27th, 1913

enamelled metal cup with a loud report, the drops of oil at 300°F or so raised blisters on the faces and hands

of my assistants and myself

The formation of lumps of salvaisan large enough to block the needle may have been due to acidity or other change in the oil, but blue litmus paper was unaffected by it A preparation called "Joha" consisting of 40% salvaisan in iodipin (iodine and oil of sesame) is advertised as painless, permanent and sterile, but I have no experience of it

Cases 20 to 50 were treated by solutions of the drug as before in pure methyl alcohol diluted with 9% sod chlor solution up to 10 ccs and administered subcu-

The injections were made in the subscapular regions of the back and caused large, painful and puffy swellings which remained for weeks and gave the patients an excuse for extended sick leave till I found that the pain did not last more than a few days, though the tumous persisted much longer Among the cures were cases of deep ulcers of thumb and fingers, secondary 1 ashes, bone gummata, syphilitic laiyngitis One case of chronic ulcer of the ankle of doubtful origin was treated and cured by one injection and the diagnosis established mainly by this means. Morphia 4 to 1 grain was given in all cases, and in many cases repeated

as the pain was intense

In July 1912, the intravenous method Cases 51 to 67 was applied The apparatus used was extremely simple but quite efficient It consisted of a primus stove and a kerosine tin cut lengthways to form a steriliser in which were boiled a litter flask, a long transfusion funnel, a filter funnel, a glass pestle and mortar, rubber tubing, clip, cannula, scissors, forceps, lancet, cotton wool, liut, and some needles and ligatures. A stock solution of '9% Na Cl one of 15% Na OH was also prepared. Though the infusion is not painful, except for the operation of opening a vein, still it was generally found advisable to give 4 gr morphia after the infusion and to repeat it, if necessary, in order to keep the patient quiet and calm and so to foster the popularity of the treat-The arm or other site of the infusion was usually treated with tineture of rodine or a 1 in 40 solu tion of iodine in petie, the latter seems to blend well with the greasy skin and acted well as an antiseptic

Half a grain of cocaine in m 20 water was usually in jected subcutaneously at the proposed site of infusion and gave uneven results endermic injection of this was also tried, but in many cases there was considerable cyidence that pain was felt on incision, though most of the patients behaved very well indeed. One case a female was given chloroform at her own request, she asked for the 'pagal dawa' The method of inserting the needle directly into a vein through the skin was

The salvarsan was removed from its capsule with the usual antiseptic precautions and mixed in the mortar with 20-30 drops of Na OII 15% sol and driuted up to 300 ccs with 9% Na Cl solution and poured through boiled cotton-wool on the filter funnel into the flask Sometime the solution was clear at once, but frequently the addition of more caustic soda was necessary this was added prespective of its amount until a clear solution resulted, and the extra amount of Na OH proved to be innocuous in the intravenous method, though it is not advisable in the subcutaneous method on account of the lower degree of dilution which would give a degree of concentration of the alkalı likely to cause sloughing of the tissues injected

When the solution was ready the infusion funnel and rubber tubing were filled with the saline solution at 100m temperature The vem was dissected out and nicked with a snip of the scissors and the cannula inserted, and when infusion was proceeding satisfactorily, the salvarsan solution was poured into the funnel until the desired amount had been given. The funnel then was filled with saline solution which was also infused, in this way the danger of uritating the wound or vein with salvarsan

solution was avoided, a matter of considerable importance for the success of the method As regards the temperature of the infusion, ordinary room temperature was sufficient in the warm weather, but sometimes if the fluid became too cold the vein contracted and the solution had to be forced into it by squeezing the subber tubing in a peristaltic sort of manner using one hand distally to prevent regurgitation into the funnel. It was also found that, by immersing the flask in boiling water and so raising the temperature of the solution The vein readily relax ed and admitted the solution freely so that the usual head of 11 to 2 feet could be diminished to a few inches without unduly slowing the infusion

I may remark here again on the care with which this drug must be handled, it was found that glass ressels only could be safely used for preparing the solutions An enamelled non bowl holding about 4 o/s was tried at first but whether the minute cracks, that are formed by heat or injury in the enamel, contained traces of drugs that acted on the 606, or whether the non itself was the cause, it was often found that the salvaisan became discoloured and unfit for use in this class of vessel and so a glass mortar was substituted and answered perfectly

Cases 51 to 67 were treated thus from July 1912

Case 51, old syphilis, husky voice, tylosis, palmaris and plantais 3 dose Symptoms removed soon.

Case 52 F, ulcerating late secondaries

effective

Case 53 M, luxuriant anal condylomata, ulcciated and disabling from work dose cured in two weeks Case 54 Two intractable ulcers at back of knee (uncertain diagnosis) 🚦 dose, iapid cuie

The subsequent cases are similar I may, however, refer to No 58, a case operated on subcutaneously in May 1912, gummata These relapsed and an intravenous infusion of  $\frac{1}{3}$  dose was given which removed the gummata rapidly (She had only received  $\frac{1}{6}$  dose in May as she was too anæmic for more)

Case 59 M received 1 dose in oil subcut, Fel, 1912 dose in saline subcut, Case 59 March, 1912 dose intravenous, Sept, Case 59 M

Histoaction temp was very high 104°, he had condy lo mata on the scrotum, and was rapidly cured by the third application

Case 60 F, Yaws 24th April 1912 Yaws on body, eylids, nose, chin and cheeks. 2½ grains salvarsan sub cutaneously in saline on May 8 yaws shrivelled, got well rapidly August 20 More yaws appeared, Scottem bet C, 1912 ½ dose intravenously All signs again disappeared rapidly, and I saw her recently quite well

Negative case F, cluster of small pus dis-Case 61 charging ulcers, bullowing like sinuses lound ankle. This resembled actino mycosis, but no clubs were found under the microscope of dose was given, but the ulcers persisted for over a month. They then healed but apparently from local treatment Salvarsan cures nie characterised by rapidity

Case 62 September, 1912 Large Naga sore or phagedanic ulcer on calf of male 1 dose No immediate iesult Salvarsan does not seem to heal Naga sores by intravenous route, though perhaps local applications might have a better effect

Cases 62 66, ordinary, secondary and tertiary cases and yaws cases cured by 3 grain doses in less than two weeks, the lesions showed an improvement in 24 hours

Case 67 was a very satisfactory one Male with gummatous uln c, gummata broken down discharging pus from near both eleocranous Backs of both hands badly ulcerated, tendons exposed & dose had excellent results. The lesions began to heal at once and were completely healed in less than a month He then went to work highly pleased, as he had come up from his country in very wretched condition.

In all cases where possible ordinary mercurial treat ment was continued after 606 treatment, and recovery of the patients from the outward signs of syphilis, but it was found very difficult to get the coolies to come regularly for treatment once the disease seemed to them to be quite cured

The cases which were not cured immediately by the

salvarsan were No 2 indurated ulcei of heel

Ulcers on leg

No 61 Treated intravenously, multiple ulcers on ankle of left leg, and case 62 the case of Naga sore

The diagnosis in all these cases was doubtful, and the drug seems useless for ordinary ulcers applied as I have described In the B M J, however, for Dec 28th, 1912, Dr H Alston, at the St Augustin Yaws Hospital in Trinidad, found that after he had cured practically all the available yaws cases he was able to cure also common ulcers by dusting them with a 1 in 3 powder of salvarsan or neo salvarsan in Xerofoi m oi bismuth sub nitrate Result iapid healing in 36%, very satisfactory healing in 60%. Failures 4% This is worth a trial, but the drug is very expensive

Besides the subcutaneous or intravenous methods the drug may be given per rectum in saline solution. In the B M J, Dec 7th, 1912, Trossarell, gaz degli osped, Nov 10th, 1912, says that he tried the method in varying doses, but in none of these patients was there the slightest effect as far as the syphilis was concerned

when the salvarsan was given per lectum
On the other hand, Dr C P Forsythe of Tezpur, in a personal communication, states that working independently he has had distinctly encouraging results in the treatment of some cases by rectal saline injection of this method is successful, it will simplify and the use of the drug, and put it more generally within the reach of the busy practitioner

The value of salvarsan even in the small amounts of d or d doses is very great in the anæmia of syphilities, in those cases who were extremely ill from this cause an immediate improvement set in, and when the anæmia was cuied larger doses were used to complete the cure of the specific lesions. In case 5 a whole dose was given to a man with severe yaws who died of an emia after two months In connection with this aspect of salvarsan, I may mention that Dr Hobhouse, County Hospital, Bughton, states in the B M J, for December 14th, 1912, that an injection of 3 gram of salvarsan intramuscularly followed by a second after two weeks cured a case of pernicious anemia. The hæmoglobin 10se from 30% to 100%, and the red-blood corpuscles from I to 5 millions per comm within four months

On January 18th, a case of yaws was injected with 45 gram of neo salvarsan intravenously neo salvarsan was dissolved in 90 ccs of a 4% sod chlor solution at room temperature. The new form of salvarsan is readily dissolved without the addition of acid or alkali and makes a perfectly clear solution, and is a great improvement on the older preparation in this respect The result was good, the yaws all dried up and were invisible in 2 weeks Reaction temperature was Reaction temperature was 101° F No rigors or vomiting

Case 69 A female, syphilis Iritis in left eye. A white cloud, apparently fibrinous, had formed in anterior chamber and had grown across the chamber from the temporal margin almost filling it in 10 days in spite of mercurial treatment mercurial treatment. The conjunctive opposite the part affected was divided looking and copper coloured. There was much pain Neo salvarsan 45 grms was given intravenously. In a week all pain had gone, but the white substance remained, and the eye only had perception of light. She however went to work and has not been The conjunctiva opposite the part

From my experience of salvarsan I consider it to be of great value in its power first of curing, the severe norms of chronic st philitics, secondly, of removing the outward signs of secondary syphilis rapidly, thirdly, of curing tertiary lesions which have proved refractory to other treatment, fourthly, of removing rapidly the skin

lesions of yaws and perhaps curing it permanently Mercurials and iodides may eventually remove all these manifestations of disease but not with the same rapidity, and certain forms such as tertiary bone lesions may be extremely refractory to these drugs, while under salvarsan treatment they heal readily

The above conditions are common causes of invalidity among garden coolies, and the treatment of them has hitherto been slow and unsatisfactory in its results, and the discovery of salvarsan has without doubt added greatly to our powers of dealing with the conditions mentioned above, and though salvarsan is an expensive drug and its administration somewhat difficult, it cannot be denied that it is distinctly a business proposition to spend a few rupees in curing and so sending to work a coolie who otherwise could only have dragged on a miserable existence, a trouble to himself and a nuisance At the same time the rapid cure of the to his employers patients has an excellent moral effect on other sufferers who are consequently willing to present themselves for treatment at our hospitals

### THE PSYCHOLOGY OF THE ANUS

BY OWEN BERKELEY HILL.

CAPT, IMS,

Offg Supdt, Central Asylum, Lahore

My reason for choosing the Psychology of the Anus as a subject on which to read a paper\* before the S I Branch of the B M A. is that it is, in my opinion. thoroughly adapted for a short exposition of the principles that have been recently developed in the study of abnormal psychology on the Continent and in the United States of America

There is little doubt that when the past twenty years come to be looked back on from the distant future one of their chief claims to interest will be that they saw the buth of the science of abnormal psychology

Already the names of Freud, Jung Stekel, Putnam and Jones have become familiar to most students of Psychology

To Freud are we especially indebted for certain generalisations of the very first rank in wideness of vali-

ity and importance of application

One of the most important contributions to the study of abnormal psychology has been the evidence which he has collected to show that a vast number of mental phenomena, langing from hallucinations and delusions to the most complicated phantasy productions invariably owe their existence to the presence of a group of conflicting ideas

Homogeniety of the mental content has disappeared because the mind contains ideas which are incompatible with each other, and dissociation has arisen as a method of avoiding the storm and stress which the warring of these mutually hostile elements would otherwise inevitably produce

Dissociation is therefore to be regarded as one of Nature's methods of dealing with conflicts which to the unconscious mind appear insoluble by other means

An investigation of any state of dissociation invariably displays the existence of a conflict as the primary, cause of the dissociation

The conflict will be found, as a rule, to involve factors which are usually associated with the great primary instincts which constitute the driving forces of the mind

We find that a struggle is taking place in which one of these primary instincts is pitted against another, or the tendencies arising from such an instinct are opposed or thwarted by conditions forced upon the patient by

Freud considers that the origin of all cases of certain varieties of mental disease can be traced back to factors

Written for but not read owing to author's transfer to Lahore

connected with a single one of the giert instincts, namely, that of sex

Even allowing for the immense power of the sexual impulse, and bearing in mind the fact that Freud's conception of sex is far wider than that covered by the ordinary use of the term his theory cannot be said to be quite satisfactorily established

quite satisfactorily established

Nevertheless, he has, in the course of his investigations, presented us with some data in regard to the origin and development of the sexual instinct in man which throw much light on what has hitherto been a very dark corner in the pathogenesis of some of the commonest neuroses

I trust that the few words which I have to say in regard to the effect the anal zone may have on the production of certain traits in a person's character may help to illustrate this point

I will begin by quoting a short passage from one of Freud's works. He writes "It is a part of the popular belief regarding the sexual impulse that it is absent in childhood, and that it first appears in the period of life known as puberty. This, though an obvious error, is a serious one in its consequences and is chiefly due to our present ignorance of the fundamental principles of the sexual life. A comprehensive study of the sexual manifestations of childhood would probably reveal to us the existence of the essential features of the sexual impulse, and would make us acquainted with its development and its composition from various sources

It seems certain that the new boin child brings with it the germs of sexual feelings which continue to develop for a time and then succumb to a progressive suppression, which is in its turn broken through by the regular advance of sexual development and may be checked by individual idiosyncrasies"

It is Freud's service to have investigated this inadequately chronicled period of existence with extraordinary acumen. In so doing he has made it plain that the "perversions" and "inversions" which reappear later under striking shapes, belonging to the normal sexual life of the young child and are seen, in veiled forms, in almost every case of nervous illness

It cannot be too often repeated that these discoveries represent no fanciful deductions, but are the outcome of rigidly careful observations which anyone who will sufficiently prepare himself for the task can verify

Now the instincts with which every child is boin furnish desires or cravings which must be dealt with in some fashion

The first pleasurable sensation which an infant experiences is necessarily that of sucking—the nipple of the mother's breast or its equivalent

The pleasurable sensation evoked by sucking evokes a desire for its repetition, so that in a short time the infant starts sucking its thumbs, a part of its lip, its tongue, or even its toes.

Similarly other portions of the body may become associated with the production of a feeling of pleasure of definite quality, or, in Freud's own words, may form an "erogenous zone"

If the infant accidentally hits upon any particular area, eq, the breast, nipple or genitals, its preference is naturally given to such area

Thus the region of the anus, mainly because of its position, is liable to become an "erogenous zone," and its acquired sensitiveness is very likely to become increased by intestinal catarrh

Hence perhaps the reason for the saying that children who suffer from infantile diarrhea suffer afterwards from "nervousness"

At any rate the old physicians were given to connect the possession of "piles" with a neuropathic disposition

I believe it is a common colloquialism in Tamil to say of a person with a short temper that "he suffers from piles"

Now children who utilise the anus as a place for the production of pleasurable sensations are easily recognised by their habit of holding their fæces

They will not pass then motions when set on the chamber pot and told to do so, but only when they feel inclined.

They are not concerned with the soiling of their beds or clothes all they care about is not to lose the pleasurable sensation of defectation, which is enhanced by a loaded state of the bowel

by a loaded state of the bowel

This wilful retention of frees is doubtless frequently

i factor in the constipation of neuropaths

The significance of the anal area as an erogenous zone is mirrored in the fact that most neurotics retain with cautious secrecy a very elaborate scatologic ceremonial!

I believe that a good many cases of "prunitus ani" have then origin in a perversion of childhood

We will now pass on to consider the alterations and modifications wrought by time and education on anal eloticism and its final effect on the character of the individual

From the age of four up to the age of eleven psychic forces rapidly develop in the child and these forces tend in later life to act as inhibitory forces on the sexual life

As ignorance is gradually displaced by knowledge and as moral and resthetic ideas are acquired, the perception of the existence and especially of the sources of sexual gratification tend to evoke feelings of displeasure

To displace this feeling of displeasure contrary forces (feelings of reaction) such as loathing, shame, etc., are developed. Thus the activity of the analzone as a component of the sexual impulse falls into abeyance, except of course in cases where, owing to accident or custom, this region continues to be employed for sexual purposes.

The suppression of the anal zone as a prominent factor in his sexual impulse is, however, not achieved without leaving a permanent mail on the character of the person concerned

We may invariably notice that in after life such persons exhibit three strongly marked characteristics, i.e., orderliness, economy, and obstinacy. These traits may in addition embrace a group of allied tendencies. Thus orderliness may include physical cleanliness as well as scrupulosity in little things, while economy may shade into avarice, and obstinacy into spitefulness.

Before discussing the ontology of these reaction formations I will read a brief summary of a case report ed by Doctor A A Brill, of Boston, which illustrates my

"X, forty, ur years old, divorced, a very successful merchant, was referred to me for treatment by Doctor The patient stated that his present Peterson illness dated back to his twentieth year On examina tion it was found that he presented a typical compulsion neurosis, and that some of the compulsive llows When eating soup he would When eating sausage he would have ideas were as follows think it urine The noise of the hoin of a motor to think of freces car made him think of flatus, especially horse's flatus, on account of which he gave up automobile riding On going to sleep he became obsessed by visions of people having movements of the bowels. A woman's mouth made him think of the rectum, her eyes recalled the anus Shaking hands with a person recalled a man using toilet paper Looking at big fat persons would obsess him with thoughts of their feecal excrements, the size, consistency, etc. A person with protruding teeth would recall feeces protruding from the anus The moon constantly recalled the rectum

"X, dressed and looked very neat and gentlemanly He was very conventional, moved in very nice circles, and tried to make the impression that he was very particular about society matters. Thus, he often referred to a friend of his as not a 'gentleman,' because he would not always put on evening dress for the theatie. The slightest infraction of the general rule offended him. He lived in the best hotels and belonged to some very fine clubs.

"From his history I found that he was very self-He hated his brothers, and gave willed and obstinate many instances to show how superior he was to them
"This attitude of mind was not confined to his
biothers but extended to other people as well

"He had consulted physicians in almost every principal city in the United States and abroad, and spoke

disparagingly of them all

"He had also been a Christian Scientist and a New Thoughter, but as they did not benefit him he put them on the same level with the doctors His obstinacy and revenge led him into commercial competition with his own brothers, and when his elder brother implored his help and threatened to blow out his own brains because of financial ruin, he not only refused to help him, but said to him 'Not a cent! Shoot yourself do you remember how you treated me?' As an illustration of his financial dealings the patient proposed to Postor Bull that he would not himself to Doctor Brill that he would put himself under Doctor Brill's care if he would treat him for less than the doctor who was at present treating him! He told one doctor that as he was poor he would request that the fees for treatment should be reduced, and the doctor not knowing his patient's circumstances reduced the fees 50% That same week the patient invested many thousands of dollars in a business venture in New York Moreover when his bill was sent him he sent his doctor a cheque for one tenth of the amount

"As a matter of fact, the patient is a very such man owning large interests in a number of big commercial

houses

"He complained to Doctor Buil that the dauggist to whom Doctor Bull sent him to have a prescription made up was 'a highway tobber !'
"In fact, he was to all appearances a miser, although

he looked to all appearances a generous gentleman

"The story of his childhood revealed the fact that he had always had a hard time to control his rectum had been punished and jeered at for regularly soiling himself up to his sixth year

"At his ninth year he was sent home to disgrace for breaking wind in the class 100m

"He had always had an extreme interest for freces and for the gluteal region"

The history of this patient affords a striking example of the formation of "reactions" His scrupulosity in the conduct of his dress and affairs are one and all "ie actions" against his anal and nectal obsessions, ie, the formation of a strong sense of shame against his interest in things that are dirty, disorderly, or not pertaining

It is not so easy to connect the interest in defecation with obstinacy, but we must remember that even in fants can be self-willed when put on the chamber pot and that painful irritations of the skin connected with the anal zone (spanking) are utilised to break the childs obstinacy. We all know that when people wish to express spite or spiteful mocking they invite people to kiss this region! Doubtless there is here a covert reference to a pleasure repressed

The relation between defrecation and money though seemingly remote is not really so

We know that misers are called filthy (filthy lucre), and that in mythology, fairy tales, superstitions, and dreams money is intimately connected with faces (goose that

It is well-known that the gold which the devil sends to his lovers is furned into exciement, and that the devil is nothing else than the personification of the suppressed unconscious sexual impulse

Still better known is the superstition that defreca tion is resociated with the discovery of valuable things Again in the old Babylonian teachings gold is referred to as the "dung of hell"

It is noteworthy that constipution in nemiopaths cannot be cured by psychoanalysis (though it can be

cured by other means) until the money complex has been brought to light and thoroughly thrushed out

In further support of this theory we may cite the fact that in persons in whom these reaction-formations have not occurred, that is, those in whom the anal zone is retained throughout life as an erogenous zone, as amongst pederasts, this triad of characteristics is not found, as most authorities agree in stating

Doubtless there are other character complexes which owe then origin to reaction-formation against erogen ous zones but so far we know very little about them

I trust, however, that enough has been said in regard to the 1e action formations against the anal complexes to illustrate the points to which I referred at the beginning of my paper, and I hope that I have made it fairly clear to you that the permanent distinguishing traits of a person are either unchanged continuations of original impulses, sublimations of the same, or reactions formed against them

### SOME OBSERVATIONS ON THE ÆTIOLOGY OF THE MALARIA IN BENGAL

BY SATYARANJAN SEN,

Asst Surgn (on Special Malaria Duty)

MUCH has been said and very little left unsaid about the Ætiology of Malana, and my only apology for the present paper is the fact that in spite of all the work done on the subject and the strenuous efforts of the Government to combat it successfully the disease continues its unabated vigoui and year in and year out goes on working havoc on the teeming millions of India

The view now generally accepted regarding the causes which induce the disease is that the anopheline mosquitoes are responsible for the spread of the disease and that conditions which favour the breeding of these insects tend to It is not the purpose of the present paper to challenge this view or seek in any way to disprove it

The popular belief regarding the causes which determine the degree and intensity of the disease may he summanised as follows -

Presence of jungle

IIWater-logging of soil and defective dramage as indicated by the presence of marshes and snamps

Presence of dired up or drying river or IIIcanal

Pits and holes—tanks and bonow-pits

While I have not been able to find any\_place free from malana in the hyper-endemic area of Bengal the results of my observations did not any belief in the popular mentioned above In villages near about each other the disease varies in degree and intensity independently of the above causes

The following table gives the mean percentage of the enlarged spleen examined amongst

children under 12 years of age in places where I had carried out my observations —

Navi	S	Number of Villages	Menn Spleen
Jessore	Thanah	85	79%
Bagherpara		64	63%
Chowgacha		19	69%
Jhikergacha		15	58%

It may give some idea of the health of the places, and the figures will be used frequently below for comparison

I Jungles—The following table gives the mean spleen rate classified in three classes according to the nature of village site—

Name	Dense	Moderate	Slight
	Jungle	Jungle	Jungle
Jessore villages	89%	77%	82%
Baghei para ,,	68%	56%	53%
Chowgacha ,,	64%	74%	65%
Jhikergacha ,,	60%	59%	59%

To give some definite instances—In Jessore thanah Rajapur, Hassimpur, Nandagiam, Mathu-1apur, Panchbari, and Roylapur-villages more or less free from jungles have spleen rate above 90 per cent, while Sataldanga, Dangabeara, Diapaia full of dense jungles—have spleen late of about 70 per cent or below In Bagherpara places having den-e jungles as Junglebadhal, Naikelberia, Telidangapaia, have spleen iate of about 40 per cent, while Naldanga, Azmatpui, Deara, Talbaii, Chechukhola which are free from them have spleen rate of about 60 per cent In Jhikeigacha thanah again jungly villages as Serampore and Magura have the same spleen rate as Jhikergacha which is not so jungly, and many other instances may be cited In none of the above villages were any special conditions noticeable to explain the apparent discrepancy

In most places the existence of malaria preceded the existence of jungles, or in other words places which were at one time well populated have become jungles because malaria worked its ravages and depopulated them

II Marshes and Swamps—These undoubtedly favour the breeding places of anopheline but a number of villages situated right on them which are not more malarious than other places. The following table gives the spleen rate of marshy places compared to the average spleen rate.

Name	Spleen rate of marshy places	Mean Spleen rate of all the places in the thanab
Jessore	78%	79%
Bagherpara	68%	63%
Chowgacha	70%	69%
Jhikeigacha	54%	58%

The best instances I can quote in support of this is that of the Polba thanah near Chinsura There are some villages on the south called Bherrs which rise right from the midst of marshes, but they are remarkably healthier than other drier places a little to the north

The presence of jungles in conjunction with maishes does not affect the general health in most places as may be inferred from the table below —

Nave	Marshy places	Marshy places without jungles
Jessore Bagherpara Chowgacha Jhrkergacha	76 5% 75% 68% 63%	78% 62% 76%

Thus in Jessore—Kutubpur, Gobia, and Bagdanga—marshy places full of jungles have spleen rate of about 60 per cent which is very much lower than the average spleen rate of the locality. In Bagherpara, similar jungly places on marshes as Shalbarat, Karlkhali, Parkpara, have the same spleen rate as Naldanga, Sadipur, Tagherra, which though situated on marshes are more or less free from jungles.

III Dried up rivers and canals—Much has been made of the presence of died-up and dying liver, and in this connection the Bhairab Valley in Jessore has always been pointed out as indicating the irrefutable connection between malaria and presence of dried-up rivers. Government in fact appointed a commission to consider the possibility of opening up the liver, but the table below shows that there is after all not so much connection as is generally supposed.

Name	*Spleen rate of villages on dead river or canal	Mean Spleen rate of all villages of the locality
Jessoi e Bagherpara Chowgacha Jhikergacha	80% 64% 68% 52%	79% 63% 69% 58%

But to illustrate the point more definitely I may state that in Jessore-Andulpota, Dalnagore, Sataldanga, Agrail, Nebutola, Inyetpui, Gobra, Munshifput, villages all situated on dead or dying livers have spleen rate of less than 70 per cent In Bagherpara villages under similar condition as Paikpara, Gadighat, Narkelbena, Bhulberia, Janglebadhal, have spleen rate less than  $5\overline{5}$  per In Jhikergacha, Daharmagura, Kissengunge, have spleen rate of about 45 per cent. and in Chowgacha, Digalsinga Majiali, Kabilpur have spleen rate much lower than villages away from such invers Of course there are many unhealthy villages on such rivers but it is not

rate to find comparatively healthy ones under similar conditions

IV Pits and Holes, etc—With regard to pits and holes, it is obviously very difficult to say with any degree of precision for there are few villages in Bengal which have not their full complement of such things, but their presence does not necessarily indicate a high spleen rate for Dhanghata and Chandpara in Jessore, Araida in Chowgacha, villages having too many of them have no higher spleen rate than the surrounding places

One outstanding fact that can be noticed is the comparative better health of the newer villages. There are in many cases a relationship discernible between the age of the village and the intensity of the disease, and this fact is strikingly demonstrated in Paikpara and Chowgacha. In both these places, there are two villages side by side, one comparatively recent origin and the other a good deal older and their spleen rate are as follows—

Paikpara New			32%
., Old	***		80%
Chowgacha New	••	• •	24%
Old			65%

This is partly due to the fact that new villages are started by men comparatively better off They can build better houses, and can clothe and feed themselves well and so hold off the effects of fevers

The collected facts above detailed are the results of my observations while working under Major Fry, IMS, Special Deputy Sanitary Commissioner for Malaria Research, and are published with his kind permission. I think they serve to show that many of the popular beliefs have little foundation on fact

# A RARE AND PROBABLY UNDESCRIBED RESIDUAL ERUPTION IN SMALL-POX

By LAWRENCE G FINK, MB, CM (Edin), Civil Surgeon and Superintendent, Central Jail, Myaungmya, Burma

Maung Ther She, Burman, aged 22 years, was admitted to Jail on 4th May 1912 in indifferent health, weight 128 lbs This man belongs to Makale Pegoung village (Wakema Subdivision), where he states there were seven cases of small-On 28th April 1912 he was for an hour in the house of a person in the scaling stage of the On 29th April 1912, he left his village and went to Moulmeingyun where he was tried the following day by the local Magistrate and convicted He remained in the Police Lock-up there till 3rd May 1912 and on that day was brought by steamer to Myaungmya and was admitted to Jail on 4th May 1912 On 20th May 1912, evening, he came to the Jail Hospital

with a temperature of 104 6°F He was kept under observation the next day, and on 22nd May 1912, he was admitted and segregated, as eruptions appeared on his face, forearms and body He stated that he had had fever, backache, and pains in his joints from 18th May 1912, but had not reported feeling ill He had two fair-sized vaccination scars on his left arm, said to have been vaccinated 14 years ago, when he was eight years old He has not had small-pox before and has never been inoculated also not been 1e-vaccinated till four days after his admission to jail, but this was not successful He was then in the incubation stage of small-The prisoner stated that erriptions first appeared on the night of 21st May 1912 but these were not seen by us till the following morning and the question of diagnosis, small-pox or chicken-pox had to be decided The incubation period of the former is usually given as 12 to 14 days and that of the latter 17 days or more On 18th May 1912, when the man is said to have first got fever, he had been 15 days m jail, and during this period had not been in contact



with any case of small-pox. He says he has not been in contact with any such since 28th April 1912, ie, 21 days before he first got fever. As this appeared to be a very long incubation period for small-pox, the further development of the eruptions was carefully watched. The following are the principal points noted.—The vesicles developed slowly as in small-pox and scabs began to form on the face first on the 10th day. The

majority of the vesicles were globular, but some were irregular in shape They were closer set on the face than on the body, closes on the forearms than on the arms, closer on the legs than on the thighs, closer on the back than on the front of the body, closer on the upper than on the lower part of the back, they were more numerous on the extensor than on the flexor surface of the extremities, they were well-developed on the hands and feet and formed wellmarked "seeds' in the palms and soles majority of the vesicles showed no umbilication and appeared superficial On pricking some collapsed and others did not Secondary fever occurred when the stage of pustulation began

The slow development of the eruptions, then appearance first on face and forearms, their density in the areas above-mentioned, secondary fever, and the presence of "seeds" in the palms and soles left no doubt as to the disease being small-pox. The incubation period was probably 21 days, but similar cases have been recorded by others. The photographs show the cruptions on the 6th day after their first appearance.

From 22nd May 1912 to 4th July 1912, the prisoner was under treatment On 5th July 1912. he was well and was put on the convalescent gang His face is decidedly pitted and to a lesser extent his body and his limbs His palms and soles show very clear scars of "seeds," there being at least on 20 each sole and as many on each palm British Medical Journal, 1st April 1911, pp. 741/7, in an article on small-pox, Dr A F Cameron states that on the palms and soles where the epidermis is thick, the pustule often does not Part of its contents is absorbed luptule and the remainder, with the thick follicle, constitutes the deep-seated crust or "seed" He also says in the vesicular stage the lesion on the palms and soles appears as a small, dark, almost black area These were very evident in the case of the prisoner, and each "seed" had, in Cameion's words, "a sensation of unyielding solidity" The writer has also drawn attention to the fact that in cases protected by successful vaccination this lesion on the palms and soles is much less modified than it is in other places. In Part I of the "Review of some of the Recent Advances in Tropical Medicine, Wellcome Research Laboratones, Khartoum," page 29, the principal points in the differential diagnosis of chicken-pox from small-pox are given. It is stated here that "seeds" in the palms and soles are usually formed only in the latter disease. It is interesting to note that this fact is known to Burmans who have also recognised the fact that in these lesions, when the skin breaks, a small hard substance resembling, as they say, 'the seeds of a chilly' This is the literal translation of comes out the Burmese word used to describe the lesion

They further state that it never occurs in chicken-pox

On 7th August 1912 the prisoner was discharged quite well from the convalescent gang and put on oidinary labour He increased in weight and looked perfectly healthy On 21st September 1912, two and a half months after he was convalescent, he had an attack of fever, but the temperature was not recorded The following morning papules appeared and some of these developed into vesicles A few of these vesicles became pustular and scabs formed The lesions were in every respect similar to those of a mild case of chicken-pox or modified small-pox prisoner had not been in contact with any person suffering from either of these diseases eruptions were most numerous on the back and chest, and there were a few on the face and extremities They were all very superficial and the scabs were thin On examining the hands two "seeds" were found on the palmar aspect of the left hand and one resembling the "dark, black area" described by Cameron and really a vesicular "seed," on the right middle finger On questioning an aged Burman prisoner, who has a reputation as a Saya (medicine man), about this strange phenomenon, he informed me that very rarely a residual eruption occurs after an attack of smallpox, that the skin lesions are mild and that at the same time there is usually a swelling of the glands in the axillæ or neck This information I elicited in the hospital on the moining of 1st October 1912, and in examining the patient a few minutes later on in the segregation cell I was informed by him that shortly after the eruptions appeared, the glands in the axillæ and in the femoral region were swollen to the size of a pigeon's egg He had not drawn attention to these swollen glands, and hence they were not examined at the time On the 1st October 1911, however, they were only just palpable in the left axilla and left femoral region. This residual eruption and "seeds" in the palms were verified by Civil Assistant-Surgeon Mi K R Menon and the Sub-Asst. Surgeon attached to the Jail There is no mention of any such lesson in the literature at my disposal, and I am unable to explain the cause of its appearance should here mention that, on the 1st August 1912 the patient was again ie-vaccinated, but not successfully, as was anticipated

A labbit and a calf were inoculated with lymph taken from the vesicles of the lesidual eruption but in neither case with any positive result. It appears to me that the viius was probably much attenuated, and probably in this stage the patient was not infectious. He was, however, segregated

The scabs had all fallen off by 4th October 1912 and the patient was practically well. No secondary fever occurred with the residual eruptions. The word "residual" appears to me to best convey

the Burman idea regarding the lesion In Crabb's "English synonyms" the word "residue is said to be derived from resido, which signifies "what remains back' The presence of the 'seeds" was a noteworthy point and taken in conjunction with the eruption elsewhere leaves no doubt in my mind as to the nature of the lesion. I shall be pleased to hear of any observations that may have been made by others on this interesting and apparently very rare phenomenon.

# STERILIZED PUS FOR THE TREATMENT OF INFECTIOUS AND STERILIZED CANCER INOCULATIONS.

BY V B NESFIELD,

MB, CAPT, IMS,

Officiating Chemical Examiner, Agra

THE reasons for using sterrlized pus in the place of autogenous or other vaccines are

1 The great simplicity and cheapness

2 The pus is truly autogenous, this is not so with vaccines prepared from organisms grown on artificial media, for the organism is changed by such growth

3 Besides the bacteria, pus contains toxins, and antibodies both extremely useful for theia-

peutic inoculation

The Method of Sterrlizing the Pus—Mix the pus which must be evacuated as aseptically as possible, with an equal part of 1 in 40 carbolic acid in a small bottle. The mouth of the bottle should then be closed with a rubber membrane, e.g., inner tube of a breycle tyre. It should now be put in a basin of cold water, which must be slowly brought to the boil

So as to allow an to escape, a hypodermic needle should be thrust through the rubber membrane. This heating should be carried out again uext day

Dosage —Begin with 2 minims, gradually increasing to 15 minims. I inoculate every other day

Cases —I will only give a short account of a few cases the results have been universally very good

Case I—Large psoas abscess pointing below Poupait's ligament. The pus was evacuated, glycerine and iodoform introduced into the abscess cavity, and the wound sewn up. The pus was sterilized as above 2 m produced a local swelling, in 10 days the dose was increased to 5 m and in 3 weeks to 15 m. The man went out cured in 6 weeks, and there was no fresh collection of pus

Case II — Multiple deep pyremic abscesses in a gul of 7 Each abscess was opened, washed out with 1 in 4 000 perchloide, and the opening sewn up. The pus was treated as above, and inoculations given. Notone of the abscess cavities refilled, though 4 new ones formed which were dealt with in a similar way.

In two months the child was well with a normal temperature

Case III—Empyema, Mahomedan, aged 30. A rib was resected and the pleura drained and inoculations of the pus given.

Case IV Septic Breast case—This was complete removal of the breast for cancer, it was a very late and very offensive growth. On the second day the temperature rose, and there was pus under the flaps. She was given 5 m of pus from the pyemic Case No II. The suppuration ceased as if by magic

Other cases were compound fractures, mastord

abscess on mammary abscess, carbuncle

Cancer of Breast cases.—On removal of the growth, it was cut into small pieces, and pounded with sterilized sand, 1 in 80 carbolic being used as a diluent. The emulsion was allowed to stand for 24 hours, and the supernatant fluid pipetted off, leaving the sand and large pieces of growth behind.

This fluid was then sterilized in the same

manner as the pus.

Case I—A Bharem from Mahomedpur. I was not able to make the emulsion at once and left the breast in 1 in 80 carbolic acid, but found it putrid next morning and no vaccine was made. The cancer recurred two months later, both locally and in the opposite armpit I removed the growth in the aimpit, and began inoculations at once The local recurrence became much smaller, and she was greatly relieved of the pain. She is still being treated

Case II—A very late case Removed the pectoralis major and glands in the axilla. except for one large one which was adherent to the axillary vessels and nerves. A large vein tore at its junction to axillary vein, and was clamped, the clamps being left on. Inoculations were started at once of her own cancer vaccine. The mass in the aimpit shrank away altogether, and she left the hospital one month later apparently cured. There was no recurrence three months later.

Case III — Was a large cancer but there were no glands in the axilla. She was given inoculations immediately There was no recurrence five months later. These three cases were operated on in Bijnoi in the early part of November 1912.

The doses given well 5 m using to 20 m every third day

The inoculations did no harm, on the contiary a lot of good, but at present it is impossible to say more

The use of pus for the apeutic moculation seems to me to open up a very large field in practical therapeutics, I have found it far more beneficial than vaccines I have published these results, as I have not the opportunities now to carry on the work \*

<sup>\*</sup> Received 6th May '13 -ED., I.M G.

### A CASE OF SERUM THERAPEUTICS

By Sub Assistant Surgeon Milkhi Ram, 37th Lancers, Lahore Cantt

Syce A of 37th Lancers, was wounded by a wild pig in the Regimental grass farm at 1 P M on 29th January He lost a lot of blood there and his friends applied an improvised tourniquet, and filled the wound with burnt cloth—a native method of stopping hæmorihage The patient was brought to hospital at 4-30 PM pale and he had lost a great deal of blood pulse could be felt at the wrist but it was very weak, frequent and of low tension large wound about 4" × 3" on the inner surface of the middle of right thigh It extended deeply into the muscles, toin fibres of which could be seen at the bottom of the wound, it was very dirty and it could not be properly cleaned temporary tourniquet was loosened to see what vessels were injured The wound filled lapidly with venous blood, but on sponging no definite vessel could be detected A proper tourniquet was applied and was loosened at 8 PM, but no hæmonhage followed

Next morning the hæmorihage had quite On 1st March pus appeared on the diessing and the patient had a lise of temperature, about 101° in the evening and it was little less next morning This continued, the temperature being generally normal or 99 in the moining and about 101 in the evening The patient was treated with stimulants, tonics and ligr morphia m xx at bed-time On the 5th he complained of difficulty in breathing and on auscultation over the lower end of the sternum, and at the tricuspid area a distinct murmur was heard This muimui faded towards the axilla mumu was soft and systolic in time It was evidently caused by a septic infection of the He complained of pain in the tricuspid valve joints and especially in the right knee decided to treat him with a vaccine, and a culture was taken from the wound by Assistant-Surgeon Blaker of the Divisional Laboratory on the 15th February

Report on the culture is shown below

M in of the vaccine was injected on 25th February The patient had a reaction fever in the evening, and on the 28th his condition was somewhat improved The murmur, however, was louder than before, and the patient complained of severe pains in the right knee Eight days later m vi of the vaccine was again injected

8th March.—Murmur was the same. The patient had a use of temperature last evening, and he complained of severe pains near the right knee and did not sleep at night. The wound was reopened next morning and a pocket of pus about

3 inches deep was detected towards the knee, and on pressing over it a good deal of pus came out from the wound. A drainage tube was inserted. The murmur was a little less. There was a considerable discharge of pus. Vaccine m ix was again given on 13th.

17th March —Patient is much better, the murmur is disappearing now and the wound is healing up

21st March — Vaccine m vii given General condition of case much better

25th March — The murmur has nearly disappeared, and there is very little discharge from the wound The drainage tube was shortened

29th March—The vaccine m xvin was again repeated Patient had a smart re-action in the evening. There is now very little discharge from the wound. The wound is, however, becoming an indolent sinus. The knee is fleved and cannot be extended.

21st April —To-day counter-incision was made under chloroform Sinus scraped and the leg straightened and placed on a splint From this time the patient made an uninterrupted recovery

This case clearly shows the great benefit to be derived from serum therapeutics. Before the first dose of the vaccine was given the condition of the patient was very bad. From this first dose an improvement began and steadily continued. Without the vaccine treatment the man would probably have died, or, if not, he would have had a very long illness and have remained an invalid.

I am indebted to Captain T F Paterson, IMS, 37th Lancers, for permission to publish this case

### BACTERIOLOGICAL REPORT ON THE CASE \*

On 15th February I took 5 cc of blood from the median basilic vein of Syce A of 37th Lancers, and this was inoculated into 2 flasks containing sterile broth, 100 cc in one flask and 200 cc in the other, 25 cc of blood was put into each flask At the same time three agar tubes were moculated with scrapings from the side of the wound in the thigh flasks of broth were cultivated for six days but On the agar tubes, however, after nothing grew 24 hours incubation a number of colonies of staphylococcus albus, staphylococcus aureus, and bacillus pyocyaneus appeared It was considered probable that the cause of the infection was the staphylococci so they were isolated and a vaccine containing 500 million of aureus in each cubic But six weeks later a culcentimetre was made In this culture ture was made from the wound

<sup>\*</sup> By G Blacker, ISMD, Assistant Surgeon, Divisional Laboratory, 3rd (Lahore) Division

there were a large number of colonies of staphylococcus aureus and a very few of staphylococcus albus and none of bacillus pyocyaneus bably his opsonic index against staphylococcus ameus required raising, but as the wound healed very rapidly, the vaccine for this purpose was not used

# Murror of Hospital Practice.

A NOTE ON THE PREPARATION AND USE OF SUBGALLATE OF BISMUTH GAUZE

> BY E A R NEWMAN, WD (Cantab ), LIEUTFNANT COLONEL, I WS, Civil Surgeon, Alipore

THE impossibility of sterilizing iodoform gauze, and the technical difficulties of preparing it in an aseptic condition (unless one does it sonally), long ago raised doubts in my mind as to the safety and desirability of the home-made article, the use of which I have given up for some time Casting about for a substitute, bismuth gauze which was then coming to notice naturally suggested itself The colourless salts of bismuth are, however, open to the objection that, unless a colouring agent is employed, it is impossible to distinguish at a glance bismuth gauze from plain unmedicated gauze Subgallate of bismuth, a salt with a bright primrose colour resembling iodoform, suggested itself, especially as it had already an established reputation in the treatment of local venereal sores The only doubt that remained was whether it would prove sufficiently stable to withstand the disintegrating effects of high-pressure steam Practical experience has shown it retains its bright colour quite unimpaired, and as I have now tested it by daily use for the last eight months, I feel justified in bringing it to the notice of the profession

At my request Dr Ynanendra Nath Chatterjee, Resident Surgeon of the Sambhu Nath Hospital, prepared the gauze, using as a medium for the emulsion, one part of glycerine and two parts of rectified spirit After the evaporation of the spirit the residual glycerine gives it a slightly damp feeling, which, however, disappears after sterilization and drying in a high pressure steam Further when thus dued there is no tendency for the salt to "dust" out

A second experiment using for the sake of economy an emulsion of curd soap was not so successful, as the gauze lost its bright colour and the gauze was dingy in appearance have therefore gone back to the original method, though I think the quantity of glycerine might be reduced by half the quantity of spirit being correspondingly increased.

The strength in which it has been prepared is 10% by weight of the gauze employed can of course be increased to 15 or even 20% if desired, but 10% gauze has proved satisfactory

Preparation—The practical details of prep-

aration are as follows -

(1) Wash the gauze thoroughly in soap and hot water, and rinse in several changes of clean water Diy

Cut the dry gauze up into convenient lengths for preparation (pieces of 1 yard or 4 yards in length are convenient in practice), and ascertain the weight of one such length

quantity of the salt is then calculated

(3) To get the exact quantity of fluid required, saturate one such length in water, pressing it lightly to get rid of any great excess squeeze out the fluid as completely as possible, collect and measure it If too little fluid is used it is difficult to get the salt evenly diffused too much the cloth drips and some salt is lost with an unnecessary waste of rather expensive materials

(4) Make an emulsion from the above data, mixing the salt with the glycerine first, and then adding the spirit, stirring it briskly the while

with a glass rod

(5) While still stirring it, immerse the gauze just moistened—as quickly as possible thoroughly knead it to get a uniform diffusion To ensure this it is important that the gauze be previously just moistened, theoretically should be used for this, but in practice water does equally well and saves expense

(6) Hang up or lay out to dry fold longitudinally three times, this gives an

8-fold gauze, and roll up

(7) Sterilize and store m dust-proof receptacle

Incidentally I may remark that all antiseptic gauzes may be prepared in this way, varying the ingredients and proportions at will water is only necessary for cyanide gauze, or for soluble salts

Uses —Subgallate of bismuth gauze prepared in this way has been tested for 8 months in a hospital containing 50 surgical beds, and from the experience thus gained I can confidently say it serves all the purposes for which iodoform gauze used to be advocated It is definitely inimical to sapræmic infections and quickly abolishes the fœtor of foully septic wounds use it for packing suppurating cavities and sinuses and dressing granulating sores, and certainly find that it checks and shortens Itsuse on aseptic operation wounds is pointless

Cost — As regards cost, an important item in hospital practice, I find on consulting Messrs Morson's price list that the price of bismuth

subgallate is 6s per lb and of iodoform 12s 6d, a comparison in favour of the former by practically one half. The medium used, viz, rectified spirit and glycerine both add somewhat the total, but this is trivial in comparison with greater excellence of the finished gauze, the cost of which cannot much exceed two annas a yard

Advantages —Compared with iodoform gauze its advantages may be summarized thus Stability and consequent sterilizability. Absence of odour Non-toxicity No tendency to dust out Cheapness Equal if not greater efficiency Equally easily recognizable, an advantage it possesses over other bismuth gauzes.

In conclusion I wish to acknowledge the help of my assistant Dr Ynanendra Nath Chatterjee in carrying out my instructions without his cordial assistance it would still have remained an idea only.

#### A LARGE UTERINE FIBROID

BY C C BARRY.

LT CoL, IMS,

Supdt., Civil General Hospital, Rangoon

THE patient, a Burmese woman, aged 44 years, was admitted into hospital with the large abdominal tumour

Previous History — Married 22 years, one pregnancy, 21 years ago, male child, still living No miscarriages

Menstruation commenced at age of 13 years, regular, monthly, lasting four days, painless, quantity normal

For last three months menstruation has lasted eight days and quantity has been excessive

Bowels constrpated

Micturition normal

The abdomen is completely filled by a nodular tumour which appears cystic in parts. It is moveable but so closely fills the abdomen and extends up under the ribs that movement is difficult.

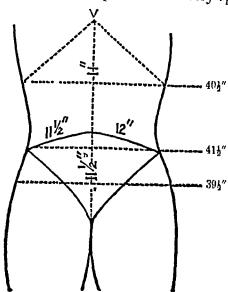
Per vaginam — Uterus is incorporated in the tumour which fills the pelvis—Sound passes  $6\frac{1}{2}$  inches.

The patient states tumour was first noticed 18 years ago as a small lump in the middle line above the pubes and has grown steadily since. It has given rise to no pain, only discomfort from its size, for last six months the size has prevented walking exercise.

The growth at umbilious measured  $41\frac{1}{2}$  inches, other measurement as per marginal sketch

The feet and lower extremities are slightly

The patient's general condition was only fair, the weight and size of the tumour causing much discomfort and impairing sleep at night Operation —The tumour which was found to be a fibro-cystic tumour of the uterus was removed by supra-vaginal hysterectomy. There were no adhesions and operation presented no very special



difficulties except those occasioned by the size of the tumour The incision to deliver the tumour extended, from the pubes to the umbilicus and the weight and size of the tumour hindered considerably the subsequent steps of the operation The broad ligaments which were greatly hypertrophied contained a large number of immense thin walled veins, some the size of the little finger, the ligation of these veins gave some trouble and anxiety, one was torn immediately flooding the pelvis with blood The stump of the cervix was much hypertrophied, very vascular, and required numerous mattress sutures to satisfactorily check all bleeding

Owing to shock and loss of blood, it was thought advisable to give an intravenous injection of 2 pints of saline solution before closing the operation

The patient made a rapid and uneventful

recovery

Patients, after the removal of large abdominal tumours, are very apt to suffer from shock and require the most careful nursing to ensure no unavoidable strain is thrown on the circulation, For this more especially any sudden strain reason, I always refram from placing such patients in the upright (Fowler's) position abdominal walls have become so stretched that for many days they afford no support to the abdominal viscera and any attempt to place the patient in the sitting position will allow the abdominal contents to prolapse to the lowest part of the abdomen with great engorgement of their circulation producing a condition that has been described as allowing a patient to bleed to The patient death into her own portal system should be kept as flat as possible and no sudden movements allowed for any purpose for several days

The tumour which weighed 40 lbs was found to be a fibio-cystic tumour of the uterus. It was mainly composed of myomatous tissue with a few cysts containing a semi-solid colloid material. The enlargement had extended down into the cervix which was about 2 inches in diameter at the point of section. The cavity of the uterus was but little enlarged.

I have ventured to report this case as it is the largest uterine tumour I have seen in a country where large tumours are not uncommon, though I am well aware very much larger tumours than this one are on record. With spread of western medical methods, large tumous will become more rare, and it is perhaps as well to place on record any extraordinary specimens.

# REVIEW ON 422 CATARACTS DONE BY "SMITH'S METHOD"

### BY RAM NATH TRIVEDI,

Sub Assistant Surgeon, Eye Hospital, Allahabad \*

In February 1912 my first paper on "Smith's Operation in detail" was read before the 6th Conference of Sub-Assistant Surgeons at Agra

Now I desire to give my experience of this operation and its results in my last 422 cases I may say that the operation which I perform does not differ in any essential way from that of Colonel Smith, so that to give a description of the operation here would be superfluous

But I think it will give my brother Sub-Assistant Surgeons some confidence in the operation when they hear what success I have had with Smith's method

In the beginning I performed this operation only for immature and selected cataracts

I have now completely given up other methods of operation in favour of this, on account of the excellent results of this operation which I daily observe in the "Manohar Das-Eye Hospital, Allahabad"

72 of these cases were done for immature cataracts, and the increase in the number of operations every year shows that this operation is appreciated

SOME IMPORTANT ACCIDENTS WHICH MAY HAPPEN DURING OPERATION

(1) Escape of Vitreous—When I hear or read that "Escape of Vitreous" takes place in every case I immediately come to the conclusion that the spectator or writer of such remark does not know how to perform the operation. In my cases escape was 5.92 p.c. during operation and postoperation escape 3.31 p.c. and it was purely due to patients squeezing their eyes while counting

figures at first dressing but now I never give them a chance of doing so as the eyes are at once closed As regard vision even after this accident, it is quite good—fai better than can be expected in capsulotomy cases

With greater experience in operating by this method escape of vitreous gets less and less every year and is not the bug-bear it was once thought to be

(2) Rupture of Capsule—This occurred in 20 cases but was always easy to manage—The capsule was removed with a pair of dissecting forceps or with gentle pressure of lower lid and in this way the capsule as well as soft matter were entirely expelled—I have never had to perform a secondary operation after this accident

### SOME IMPORTANT COMPLICATIONS

(1) In this —Percentage of initis is very small after this operation and if it does occur, it is only of a mild type. The number of cases of this complication was two only

For treatment of this complication mercury is pushed freely as it cuts short the attack

Atropine is seldom used—Atropine has no curative effect in iritis, besides old people do not

bear frequent instillation of atropine lotion well
(2) Prolapse of Irrs—Occurred in only 1 5 p c
of the cases and every day this complication is
vanishing

Sterilized eserine lotion useful in averting its occurrence whenever this complication is suspected

(3) Panophthalmitis—1 4% was met with in my cases and was due to severe vomiting but largely to patients disturbing the dressing (ignonance and stupidity over which I am sorry I had no control)

(4) Delay in healing of wound was very seldom seen, and if ever it was noticed, such patients were put on tonics

(5) Opacity of vitreous was not found in any case after this operation

(6) As regards post glaucoma, secondary hamorihage or detachment of retina or choroid, I have fortunately never come across any of these complications in my cases up to this time.

### VISION

Every case was tested before being discharged from the hospital and was put before the Superintendent of the Hospital himself for inspection. The average vision was from 6/15 to 6/8 and 97 p.c of these cases got every good vision for distance as also for near work. Only 1.5 p.c obtained poor vision for some pathological defect in the other refractive media.

Patients were asked to come back for glasses after three months' rest but those who have come from long distances were supplied with proper

<sup>\*</sup> Read before the 7th Conference of the All India Sub Assistant Surgeons' Association on the 28th February 1913, at

glasses, but were strictly prohibited not to use them for three months

Subsequent examination for vision was also made in many cases and their results noted

The following statement will show that patients examined months or even years after the operation

had very good vision. The table given below of 20 cases is not made up of selected cases but they are simply taken as they came. I could give a large number of these, but the following will serve the purpose of showing the vision obtained in cases after this operation.—

No Name	Residence Eye	Ditc of Opera	Escape of Vitreous	RESULT ON 2ND VISIT				
	And Residence Bye from	fion		Dite	Vision	REMARKS		
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	F K G P T K N S do A A A G P G D S L N D S W B B S M H W H G L B L S	Fatehpur Ghazipun Pai tabgai h Allahabad do Agia Jaunpui Bunda Moradabad do Allahabad Fatehpui Agia Allahabad Moradabad Allahabad Allahabad Allahabad Allahabad	L E E E E E E E E E E E E E E E E E E E	22 11-11 27 12 11 19 10 11 18 03 11 12 3 12 3 12 09 11 1 13 16 2 12 13 10 12 13 10 12 14 3 11 17 2 10 7 1 12 23 11 12 16 1 13 27 11 12 10 11 12 16 11-12 25 12 12 30 11 12	Slight	5 2 12 3 3 12 6 6 12 8 8 12 13 09 12 Oct '12 26 11 12 27 11 12 21 12 12 10 12 12 15 2 13 16 2 13 18 2 13 19 3 13 19 2 13 24 2 13 25 2 13	6/8 6/8 6/8 6/8 6/8 6/6 6/5 6/5 6/8 6/5 6/5 6/6 6/5 6/6 6/5 6/5	Immature above 100 years of age No iridectomy Gianulai lids Immature Immature  Disturbed the dress ing Immature Immature

I am very much obliged to It-Col J K Close, IMS, Superintendent (Civil Surgeon of Allahabad), for his kindly permitting to publish the results of my cases

### DATURA POISONING, By G M MUKOPADHYA

Case No 1 — Nuisinghai, C I, Onkaii girl, aged 3 years, was brought into the hospital at about 7 PM, 5th October

Present Condition — The child was brought in quite unconscious

Pulse —Very feeble and running, breathing also very feeble

On enquity it was found that the girl ate fresh and unripe fruits of datura, mistaking them for sarifa (custaid apple) or seetaphal, which grows almost wild in this place

Treatment —An injection of strychnine was at once given and the child somewhat revived

The stomach pump was at once used and the contents washed out. A large quantity of chewed up datura fruit with reddish brown pulp and seeds were extracted, which were afterwards died and weighed, and the result obtained was about 2 drachms

The shock of the pumping was too much for the child and a condition of collapse set in Pulse could not be felt and breathing stopped

Artificial breathing was at once resorted to, and breathing restored after about half a minute

Another injection of strychnine was given, the child revived, respiration remained troubled and pulse better for some time, but again the child began to sink.

A dose of brandy (½ drachm) was at once poured down the throat and steady friction over the extremeties used, pulse became better and breathing fair, but the child did not revive consciousness yet. Cold affusions were used but without any appreciable effect.

An injection of pilocarpine nitras  $\frac{1}{12}$  gr was given to counteract the effect of daturine, the result was marvellous, the child opened its eyes after a few seconds. Another injection after half an hour and a still further improvement was at once seen. Five injections of pilocarpine nitras were given in succession within 4 hours of  $\frac{1}{12}$  gr each, after the third injection the child was better

Case No 2 —Rambai, girl, aged about 7 years, Hindu was brought into the hospital at about 7 PM, 5th October

On enquiry it was found that this girl too ate unripe fresh fruits of datura, mistaking them for custard apples

Treatment—Stomach pump was at once used and a quantity of datura seed and pulp extracted, weighed afterwards and found to be about half a drachm

The child, however, began to sink, and an injection of strychnine given at once. Two injections of pilocarpine nitras of  $\frac{1}{6}$  gr each were sufficient to revive her consciousness and cold affusions with forced walking were also employed. The child survived and was discharged the next day

# Indian Medical Gazette AUGUST

### THE NEW I M S WARRANT

#### IMPORTANT CHANGES

WE reprint herewith in full the new I M S Warrant of 3rd June 1913, as it is by no means a mere repetition of the previous Wairant of 13th March 1908 \* but seems to indicate a new depaiture which, according as it will be worked, may or may not be the beginning of very vital and important changes in the methods of promotion

We have italicised the most important changes -(Gazette of India, June 28th, 1913)

"London Gazette," dated the 3rd June 1913, pages 3919, 3910, 3914, 3915, 3918 and 3919

> India Office, June 3, 1913.

### GEORGE R & I

Whereas We deem it expedient to revise the rules for the promotion and precedence of Our Indian Medical Service

Om Will and Pleasure is that the Warrant of Our late Royal Father of the 13th March 1908, and Our Warrant of the 8th August 1911, be cancelled, and that from and after this date the following rules shall be established, and that by these rules Our Viceroy and Governor-General in Council shall be governed

The substantive ranks of Medical Officers in Gui Indian Military Forces shall be as follows -

Surgeon General (ranking as Major-General) Colonel

Lieutenant Colonel

Ma101

Captain

Lieutenant

The Director General of Our Indian Medical Service shall hold the substantive lank of Surgeon General, but may rank as Lieutenaut-General, when approved by Our Secretary of State for India in Council

- 2 An officer will not be permitted to remain in the service if at any time during the first three years from the date of his first commission his retention therein is, in the opinion of Our Secretary of State for India in Council,
- 3 Except as otherwise herein provided, a Lieutenant shall be eligible for promotion to the rank of Captain on completing three years' full pay service, if he has previously passed such examinations as may be prescribed by Our Secretary of State for India in Council, and is in all other respects qualified and recommended who has not passed the prescribed examinations may be provisionally promoted, if, in the opinion of Our Governor General of India in Council, he has not had a

Such provisional reasonable opportunity of passing promotion may be cancelled as soon as he has had such opportunity and has not passed

- Except as otherwise herein provided, a Captain shall be eligible, if in all respects qualified and recommended, for promotion to the rank of Major on completing nine years' full pay service in the rank of Captain period may be reduced by six months in the case of an officer who produces satisfactory evidence of progress in any branch of knowledge which is likely to increase his efficiency A Captain who may be prevented by exigencies of the service from obtaining an opportunity of qualifying for such accelerated promotion shall have the concession open to him for a period of four years after his promotion to the rank of Major in ordinary course, but any antedate of promotion which may be granted shall be without adjustment of pay
- 5 Except as otherwise herein provided, a Major shall be eligible, if in all respects qualified and recommended, for promotion to the rank of Lieutenant-Colonel on completing eight years' full pay service in the rank of Major, including any period covered by antedated promotion without adjustment of pay
- 6 Time on half-pay, not exceeding one year, shall be allowed to reckon as service for promotion under Articles 3, 4 and 5, if removal to half-pay has been the consequence of medical unfitness caused by duty, military or civil
- A Captain after at least six years' service, a Major or a Lieutenant Colonel may be promoted to the next higher rank by brevet for distinguished service in the field or for mentorious or distinguished service of an exceptional nature other than in the field
- 8 A certain number of Lieutenant Colonels may be specially selected for increased pay for ability and merit
- 9 Promotion from the rank of Lieutenant Colonel with increased pay to that of Colonel, and from the lank of Colonel to that of Surgeon General, shall be given by selection for ability and merit, and the grounds of such selection shall be stated to Us in writing, and recorded in the Office of Our Secretary of State for India
- 10 A Lieutenant Colonel may also be promoted to the rank of Colonel, and a Colonel to the lank of Surgeon-General, for distinguished service in the field In any such case the Officer shall remain supernumerary in the higher rank until the vacancy to which, in the ordinary course, he would have been promoted, or, in the case of an Office1 promoted to the rank of Colonel, until selection for the rank of Suigeon General
- 11 Exchanges between Officers of Our Indian Medical Service and Officers of Our Royal Army Medical Corps, being of the same lank and below the lank of Major, and transfers of Officers below the rank of Major from either of the above-mentioned Services to the other, shall be permitted with the approval of Our Army Council and of Our Secretary of State for India in Council, and on the following conditions -
- (1) That the Officers have less than seven years'
- (2) That in the case of Captains, their seniority for the purpose of exchange shall be determined as if they ad been promoted after the period of service required

<sup>\*</sup> For which see the ever valuable I M S Manual by Seton and Gould (Thacker, Spink & Co)

for promotion to that rank in the service into which they exchange, but that any alteration of date of rank made in pursuance of this provision shall be without adjustment of pay

- (3) Subject to (2) that the senior Officer exchanging takes the place of the junior on the list to which he exchanges, and shall not be promoted until the Officer next above him has been promoted, or has been refused promotion in consequence of failure to qualify for it
- (4) Subject to (2) that the junior Officer exchanging is placed for seniority next below all Officers on the list to which he exchanges whose commissions have the same date as his own
- (5) That the Officer transferred is placed for seniority below all Officers holding the same rank at the time of his transfer, and shall not be promoted until the Officer next above him has been promoted or has been refused promotion in consequence of failure to qualify for rt
- With a view to maintaining the efficiency of the service, Medical Officers shall be placed on the Retired List when they attain the following ages -

Director-General	62
Surgeon-General	) 50
Colonel	60
Lieutenant Colonel	1
Major	55

But a Lieutenant-Colonel who entered the service be fore the 1st April 1911, and who has been specially selected for increased pay under Article 8 may, if he attains the age of 55 years before he becomes entitled to the pension for 30 years' service, be retained until completion of such service, and in any special case where it would appear to be for the good of our service that an officer should be continued in employment, he may be so continued, subject in each case to the sanction of Oui Secretary of State for India in Council

- An Officer appointed after the 11th September 1890, who may retire on pension before completing 30 years' service shall be liable, till he completes 55 years of age, to be recalled to duty in case of emergency
- Six of the most meritorious Officers of Our Indian Medical Service on the Active List shall be named Our Honorary Physicians and six Our Honorary Surgeons and they shall relinquish such appointment on retire. On appointment as one of Our Honorary Physicians or Honorary Surgeons an Officei under the rank of Colonel 11 Our Indian Medical Service may be pio moted to the bievet rank of Colonel

Given at Our Court at St James's this twenty-eighth day of May 1913, in the fourth year of Our Reign

By His Majesty's Command,

CREWE

Para. 2 above is new, but no one will object to the Secretary of State having this power to get early 11d of undesnables This places I M S on exactly the same footing as all other aims (vide A R I, Vol II, para 310)

The changes in the conditions of promotion are more important and it remains to be seen whether

they are mere verbal alterations or whether they ındıcate a change of policy The previous Warrants under which every man has entered the service or served in it, used as regards promotion the words "shall be promoted," and it cannot be maintained that the new expression "shall be eligible for promotion" is not a very material alteration

We herewith contrast the two Warrants —

Warrant of March 13, 1908

Para 3-Except as otherwise herein provided a Captain shall be promoted to the rank of Major in completing 12 years' full pay service, &c Para 4—
Except as otherwise herein provided a Captain shall be eligible, if in all respects qualified and recommended, for promotion to the rank

Para 4—
Except as otherwise helein provided a Major shall be promoted to the rank of Lt Colonel on completing 8 years' full pay service in the rank of Major ink of Major

Warrant of June 3, 1913

Para 4for promotion to the rank of Major on completing nine years' full pay service in the rank of Captain

Para 5-Except as otherwise herein provided a Major shall be eligible if in all respects qualified and recommended for promotion to the rank of Colonel on completing Lt Colonel on completing 8 years' full pay service in the rank of Major includ ing any period covered by antedated promotion with out adjustment of pay

Lieutenants under the new Warrant must also be "eligible" and the expession "shall be promoted" is also no longer used

Judging by the number of letters we have received on this matter this important change in the conditions of service has been quickly noticed by officers all over India doubtedly an important change, but it must be remembered that while we admit that the valuable privilege of automatic promotion is withdrawn the new rules merely place us on an equality with other branches of the army, and we must recognise the fact that selection may. in future, operate at various period (3 years, 12 years, 20 years), to retard the promotion of any individual whose conduct has been found That this new rule will be to be unsatisfactory popular is very unlikely but it must surely tend to efficiency, as at no part of an officer's career can be reckoned on promotion as a matter of course This rule will apply to all officers in the service.

Apart from this (possibly) far reaching change the other changes in the new Warrant are of less 1mportance

The rule by which a captain is promoted to major, unless his promotion is "accelerated," on completion of 9 years' full pay service as a captain, will also affect all lieutenants whose promotion to captain is delayed by failure to pass

their examinations. Hitherto such officers, although delayed as regards promotion to captain would have obtained their majority after 12 years' service, now they will have to put in nine years as captains, therefore failure to pass the promotion examination to captain will carry with it delay in promotion to major and to lt-colonel

The new Warrant also clearly lays down that the system of extensions of service to complete 30 years' service (and to get full £700 pension) is now definitely limited to officers who entered the service before 1st April 1911. In other words, the batch of 29th July 1911, and all subsequent batches will not get extensions of service after reaching the age-limit.

The new rule of appointing officers on the active list to be Honorary Surgeons and Physicians to the King has been already announced and will, we believe, be generally approved

On the whole we hope the new Warrant will make for efficiency, though many will regret and a few will no doubt suffer from the withdrawal of the privilege of automatic promotion which hitherto has been a prized characteristic of service in the I M S, and as such we too regret its disappearance

# THE CALCUTTA SCHOOL OF TROPICAL MEDICINE

WE are glad to be in a position to announce that the scheme for the establishment of a School of Tropical Medicine in Calcutta is now so fai advanced that it may confidently be expected to open in the autumn of next year remembered that the suggestion was originally put forward in 1910 by the Medical Section of the Asiatic Society of Bengal as a suitable memorial to King Edward, but was unfortunately rejected in favour of other proposals, which by the way do not appear to have even yet matured Possibly some of the funds then collected may still be available for endowing the new institution? The Government of India, however, at once saw the great advantages of the proposal, and suggested tentative arrangements being made to start post-graduate teaching at the Calcutta Medical College Hospital without any additions to the staff or laboratories As this was impossible owing to a biological laboratory being already required, it was decided to build this on a site adjoining the Medical College, and to provide additional research rooms above for the Tro-It was not, however, until well on meal School in 1912 that the sanction of the Secretary of State for India was obtained for the scheme the meantime a larger site than that for which the original plans were drawn up was sanctioned by the Government of India, which necessitated a reconsideration of the designs to make full use of the fine area now available Thanks to the Government of India giving an extra lakh on the advice of Sir Pardey Lukis, the plans now adopted provide for a two-storied building with 220 feet of noith light facing Colootolah Street, with foundations to carry a third story A library and reading room, when it is required as well as a practical class 100m, will be provided for the post-graduates, while the lecture theatre will be fitted for the use of the epidiascope, microscope projection apparatus and a cinematograph, as films of medical interest are now available, illustrating such subjects as malarial prophylaxis and the movements of trypanosomes in the blood of an animal Further, a number of separate research 100ms for different branches of medical science will be provided, in addition to a very fine general pathology laboratory, in which the post-graduates can be helped in working out their clinical cases and learning methods of research

One great essential remains to be sanctioned, namely, an adequate staff to enable the abundant facilities for teaching and research to be fully utilized When the Government of India put forward their first proposal for commencing on modest lines, they stated that it was their intention eventually to establish a fully equipped School of Tropical Medicine with a special staff of its own The Institution is now arranged for, and the question of the staff will be taken up before long, and it is understood that several whole time officers, who have already made their mark in scientific research, will be appointed Additional workers, specially qualified to carry out investigations in various branches of tropical medicine, will be required to completely man the new laboratories, and allow the fullest use to be made of the unique material in the adjacent Medical College Hospital and other large medical institutions of Calcutta The important practical results obtained in Calcutta in connection with cholera, epidemic dropsy, dysentery, etc., by the

very limited number of workers hitherto available, are a guarantee of more rapid progress when a body of experts is available to investigate the numerous scourges of the tropics What is now wanted are substantial endowments of several additional research chairs at a cost of three to four lakhs, or annual subscriptions of Rs 20,000 This would allow of the best workers in England and India being got together and given the great opportunities for research about to be provided in the premier city of the East Such a chance of being able to aid with then contributions in the prevention of suffering and death among the vast population of India should appeal with irresistible force to the numerous princes and philanthropists of this Even from the purely business vast country point of view of rupees it will pay the great industries of cotton, jute, tea and coal to finance research in these lines, a principle which is well recognised in the liberal contributions of English merchants to the Schools of Tropical Medicine Liverpool and London, the latter having recently raised over £70,000 for extensions alone It has been brought to our notice that the London School has been asking for donations and annual subscriptions from Indian railway companies and other bodies, but considering the much greater needs of our own school we are strongly of the opinion that the Calcutta institution has the first claim on Indian contributors to the endowment of research in tropical medicine, as here alone can it be utilized to the greatest advantage in the study of the diseases Indeed India might well appeal of hot climates rich Great Britain for substantial help in work of such Imperial importance

A Bombay scheme has also been put forward for Parel on the lines of the Calcutta School of Tropical Medicine, but without the inestimable advantage of the closest possible association with the premier Medical College Hospital of India We venture to think that this would be a great mistake, and that Bombay would be far wiser to specialize in a different, out equally useful line, by organising a Tropical School of Hygiene to give the best possible training and a diploma in public health, and so enable the plans of the Government to provide whole-time health officers for all the large towns of India to be rapidly carried into effect. The Parel laboratory appears

to be admirably situated for such a badly wanted institution, as so much good work has already been done there in preventive medicine, especially in relation to plague, by the late Major Lamb, Surgeon-General Bannerman Major Liston and others. A Bombay School of Tropical Hygiene, to train men for the whole of India, would be complimentary to the Calcutta School of Tropical Medicine, instead of duplicating it and the two Institutions will allow of advance all along the line in both preventive and curative medicine, and place medical science in India on a par with that of the most advanced nations of the world

# Current Topics

### SANITARY REORGANISATION IN BOMBAY

A GOVERNMENT Resolution appeared in the Bombay Gazette, dated 5th June, on the steps taken and to be taken for the appointment of Health Officers and Sanitary Inspectors in towns and municipalities. The Bombay Government has very liberally agreed to bear two-thirds of the expense of Health Officers and one-third in the case of Sanitary Inspectors The towns in Bombay Presidency are divided into three classes, class 1 towns are to have a Medical Officer of Health (first class), and one Sanitary Inspector for every 25,000 of the population, such towns are Ahmedabad, Surat and Poona In towns of the second class (such for example as Hyderabad Sind, Sukkui, Ahmednagai oi Bioach, as Medical Officer of Health of the second class and one Sanitary Inspector for every 25,000 of the population Towns of the third class (such as Nasık, Satara, Dharwar, or Gadag), are not to have a Health Officer but to have one Samtary Inspector for every 25,000 inhabitants

The qualifications for these Health Officers are as follows —

Medical Officers of Health of the first class will be required to possess a registrable medical qualification and, for the present and until proper arrangements exist in India for post graduate study, a British diploma in public health The question of the acceptance in lieu of the latter qualification of a diploma of Bacheloi of Hygiene or of Poctor of Hygiene of the University of Bombay is under consideration

"In the case of Health Officers of the second class the possession of a degree of MB, BS, will be a necessary qualification, and selected candidates will be required to undergo a nine months' course in hygiene and a three months' course in epidemiology according to the syllabus approved in Government Resolution No 2161, dated the 15th March 1913

"Sanitary Inspectors including those already in municipal employ, will be required to obtain a certificate of sanitation after attendance at the sanitary survey ors' class held in Bombay"

The minimum rates of pay are given below and it iemains to be seen what class of man will be got for the first class Health Officers, with a registrable qualification and a British DPH, the more so as all Health Officers are rightly and necessarily debarred from engaging in private

The lates of pay fixed for Health Officers and

Sanitary Inspectors are as follows -

### Health Officers

 $R_{8}$ 300-20-500 150-10-300

First class Second class

(Subject to enhancement in special cases )

### Sanitary Inspectors

 $\mathbb{R}^{\mathfrak{g}}$ 

Sanitary Inspectors in sole charge 75 Sanıtary Inspectors under a Health Officer 50 +

(These rates represent the minimum admissible under the

We are glad to see that arrangements have been made to give some security of tenuie to these officers, and in all case of appointment, punishment or dismissal, the sanction of the Divisional Commissioner is necessary

There is added to this resolution a synopsis of the course of study to be required of Health Officers of the second class, who have not yet got all PH It is to consist of nine months' attendance at classes and practical demonstrations in the subjects prescribed for Sinitary Surveyors in Bombay, and in addition instruction in the examination of food-stuff, adulterations, care of cattle and management of dames and milkshops and collection of water for analysis In addition there is prescribed an excellent three months' course in epidemology at Parel

### GRANT MEDICAL COLLEGE, BOMBAY

THE Report for 1912-13 was published in On the retirement of Lt-Col C H Meyer, MD, IMS, Lt-('ol A Street, FRCS, was appointed Principal sub pro tem, in addition to his duties as Professor of Surgery, Major Gordon Tucker was confirmed as Professor of Pathology and appointed to act as Piofesson of Medicine, Capt R M Carter acted as Professor of Pathology, and Capt A J V Betts as Professor of Materia Medica

The total number of students on the roll was 514, vic, 69 Europeans, etc., 309 Hindus, 124 Paisis, 17 Mahomedans and 1 Jew There were

24 military medical pupils also

For the final examination for degree of MB., BS in part i, there were 47 candidates and 28 passed, and for part ii, there were 68 candidates and 36 passed. It is satisfactory to see that a high standard is maintained for this We also note that for the MD mination of four candidates in the three branches Medicine, Midwifers and Sanitary Science only one passed In the degree of Batchelor Hygiene, pts 1 and 2 there were 7 candidates

and 5 passed, for the M. S degree the single following We quote the candidate passed general remarks from the Report

"The New Physiological School Buildings erected at an estimated cost of Rs 194,900 have been brought into use since February 1913, a sum of Rs 71,000 was expended on its equipment and fittings during the year Its equipment is not yet complete, and a further sum for it will be required during the next year

"The question of providing a new building for the Bacteriological Laboratory is under consideration at present, and pending the erection of the building the Laboratory will have to remain in the old chronic ward of the J J Hospital as at present

'The plot of ground on the Kennedy sea face, kindly allotted by the Government, as play ground for students of this College, has been taken into possession by the Honorary Secretary of the Gymkhana It is proposed to construct a suitable Gymkhana Pavilion there, as soon as funds become available

"Rs 500 have been invested into Government Securities out of the donation of Rs 5,000 made by the Trustees of the N J Wadia Fund, for buying cupboards or book-cases in time to come, and the greater portion of the balance was spent on books for the College Libialy during the year, there still remains a balance of Rs 266 to be spent on books which will be availed of during the following year

"Major E F Gordon Tucker, IMS, Professor of Pathology, has prepared a Second Supplementary Catalogue of specimens in the Pathological Museum,

which is now ready for printing

"Under the Revised University Regulations, failed students are required to put in Collegiate attendance, like a regular student before re appearing at the First or Preliminary Scientific and 2nd or Intermediate MBBS Examinations, and in the case of the final examination, such students are required to attend practical work in the subjects of the examinations These regulations are made applicable for the first time, to the examination to be held from September 1913, and It is very important that students should note them in time, otherwise they will be disappointed

at not being allowed to reappear for the examinations "Lieut Colonel C H L Meyer, I Ms, having retired from the service, the College loses its Principal much to the regret of the students as well as the whole College Lietu-Colonel L F Childe being on furlough on medical certificate for one verr, the Principalship was sub pro tem awarded to the undersigned (Lt-

Col. A Street, IMS)
"Di N F Surveyor has continued his General Research
Work in the F D Petit Laboratory Dr R Row has

work in the F D Fetit Laboratory Dr It alon has also been carrying on his work there
"Mr M B Soparkar, MD, was appointed Lord Reay, Lecturer for the Winter Session The subject announced for the lecture was "Pathology," and he selected "Leishmaniasis" with special reference to Tala Asan and Omental care as a subdivision of that Kala-Azar, and Oriental sore, as a sub-division of that subject, and treated it ably and satisfactorily in a series of two lectures, accompanied by magic lantern demonstrations"

### DENGUE IN PALESTINE

In an interesting article in the Journal of Hygiene (Vol 13, No 1, April 1913), Dr E W G Masterman gives an account of some tropical diseases of Palestine, and after describing the very exceeding prevalence of malaria in Jerusalem he gives an account of an epidemic of dengue which visited Syina in 1912, which as the disease still persists in India may be of interest to our readers The disease spread all over Syria in that year and reached Jerusalem in September,

some of the Bedoin tribes suffering severely Its characteristics may be briefly here synopsised Onset sudden, though not always so, an ague like chill often mentioned in the beginning, headache, pains in loins and over spleen and liver, pain in occiput ind back of neck Epigastiic distress very marked, vomiting very common, tongue Obstinate constipation common, sometimes diaithea, often the result of purgatives taken Pyrexial stage from three days in mildest to eight or ten in the severe, in latter cases temperitures of 104-105° F are found Relapse and recrudescence of pyrexia are characteristic, and profuse perspirations at the close Epistaxis is very common, abortions sud to be common, after the fall of the fever the pains get less but often persist Two forms of rash have been noticed, severe congestion of the skin of face and a morbiliform or scarlatiniform which uppear at the end of the acute stage. The onset and disappearance of rash is fiequently accompanied by an intolerable itching, Nerve prostration and neuralgra common during recovery Relapses common and apparently little The epidemic or no immunity is conferred simply dies out in the cool weather Children under 5 years were seldom attacked

Dengue of Abu Rikab has been more of less endemic upon the Syrian coast for half a century past and it is a frequent visitor at Jiffa ind coast It was severely epidemic in 1909, August till November are its usual months Marked leucopenia was usually present on blood

Diagnosis has to be made from influenza, and

from "Three-day fever"

Nothing certain is known of the organism, the blood is infective even after filtration through a The writer does not believe in Berkefeld filter the pathogenity of Di Graham's "bodies," but he thinks a mosquito is the carrier-"all experience here points against infection by mere propinguity"

### BERI BERI PREVENTION IN SIAM

DR H CAMPBELL HIGHER, MD, P M O of Health, Bangkok, Siam, has presented a useful and interesting report on investigations made on Beil-beil by the Medical Officers of the Health Department of Siam

It is well known that the advocacy of Braddon had led to the use of unpolished lice, and it had been found successful in Siam before the wellknown work of Fraser and Stanton had estab-

lished this theory

We need not follow Dr Campbell Highet in his account of the experiments on the use of polished nice and other nices in the asylum, the most important point he has established is that while it is necessary to avoid the highly polished rice of the steam mills it is possible to make what is here called an "undermilled rice" in steam mills, which is equally good and equally beil-beri preventing to undermilled rice prepared by hand

This will go a long way to appease rice millers who were up in arms against legislation which, in the interests of the peoples' health, was certainly and necessarily directed against the highly milled and highly polished rice produced in the mills

A good deal of Di C Highet's report is taken up with a natural but unnecessary rehabilitation of Siam lice, because Fraser and Stanton in then report had mentioned as being inferior in fat and more harmful in effect certain highly polished samples they had examined and called Siam As a matter of fact analysis shows that Siam rice has practically as high a proteid and fat content as any other and equally as high a percentage of P2 O5 Siam rice therefore when sufficiently under milled is just as potent in preventing bei 1-bei 1, as it is potent in producing beri-bei when it is highly polished, as is any other Eastern

We quote, as follows, Di Campbell Highet's conclusions -

From the data supplied in the foregoing pages, one is amply justified in coming to the following con clusions -

"1 That berr berr as a cause of sickness and death, not only in Bangkok, but also in other parts of Siam, is a disease of such importance as to call for the serious

attention of His Majesty's Government

'2 That we are convinced of the correctness as a working basis of the theory that berr is associated with the continued consumption of white (polished) rice as a staple diet in man, provided certain other sup plemental and necessary ingredients of diet are con sumed in insufficient quantity

That we agree with other investigators that the amount of phosphorus in a given rice is a good indicator of its beil-berl producing properties, and that a rice which contains less than 04% of phospholus pentoxide is likely to cause beri beri under the conditions described

in conclusion 2
4 That Si

That Siam rice compares most favourably with the rice of neighbouring countries, and when not unlied beyond the standard of phosphorus pentoxide already mentioned is as excellent a prophylactic against beilberi as the rice of any other country

"5 That a bern ben preventing rice can readily be prepared from Siam padienther by hand mill, or steam mill, and that the padi need not be previously parboiled

"6 That the incubation period of heri-herring Start

That the incubation period of beri-beri in Siam

18 roughly sixty days
"7 That there is a definite seasonal incidence of the disease in Bangkok, with a maximum rise during Sep tember and two secondary rises one in March and one in May, and that the cause of these variations is not

apparent
"8 That the deaths from beri-beri are mostly amongst young adult males, 826% being at ages ranging from

16 to 45 years, but why is not yet known

"9 That bern bern costs the Government at least sixty thousand ticals per annum, and that a modest estimate gives for the past eleven years a total financial loss of one million ticals

"10 That our knowledge of the ultimate substance in unpolished rice which prevents beri beri is still insufficient to guide legislators in framing an Anti beri-

beri Law

"11 That the rice millers of Siam can await any such legisla tion without fear of damage to their trade That although legislation against white polished

rice be somewhat premature, much good might be done if the use of this kind of rice were prohibited in all Government Services and Institutions, and only under

milled rice containing at least 04% of phosphorus

pentoxide were permitted.

"This is already done in Bangkok and Muang Jails, in the Police School, the Police Hospital, the Asylum for the Insane, the Hospital for Infectious Diseases, and in the Reformatory and Police Station at Koli Si Chang Practically the whole of the Provincial Gendarmery subsists upon undermilled rice with almost total absence of bert bert amongst nearly 9,000 men "

#### CLIMATIC BUBO

The China Medical Journal (May 1913), contains a useful article by Di G D Gray, of the British Legation, Pekin, on climatic bubo, a subject which was considerably discussed in India some 17 years ago at the time plague

became recognised in this country

Dr W J Simpson claimed to have found an organism resembling b. pestis in some cases in the Shropshie Regiment which had recently arrived in Calcutta for Hongkong, and it is known that Di Cantlie endeavoured to prove that "climatic bubo" was a form of pestis minor and more recently Luzzatti has gone one better Di Caddy described and named it parapestis non-venereal-non-plague bubbes in Calcutta in these columns, and most medical men are agreed that there is such a disease as an entity by itself and in this view Castellani and Chalmers agree (New Ed Tropic Diseases, p 1435) commonly met among sailors and stokers on steamships, and Di Givy has never heard of a case among women

Various micro-organisms have been described, but the ætiology of the disease is still obscure. the most recent theory we have seen is that of G Rost, [Archiv fur Schiff-und-Tropen Hygiene.

v Lancet 7-12-1912] who says-

"No visible cause can be assigned for the disease, cases occur for which no micro organism whatever can be brought to view. As to causation it only occurs in the groin through which pass the lymphatics from the genital organs. It does not appear in children or in married people, or in those people aboard ship who are abstruent, and he concludes it is due to a micro organism found on the vagual mucosa of negro women."

### THE FIRST AID PACKET OF THE AMERICAN ARMY

THE following description of the First-Aid Packet supplied to all officers and men on active service in the American Army is taken from a useful article by Dr G M Bleck of Chango published in the American Journal of Surgery (May, 1913)

"Tamponade and gauze pressure do not differ from the treatment of accidental wound in peace surgery For this purpose officers and men are provided with individual first aid packets which ment attention

"A similar one is issued by the Navy and is also obtainable from the First Aid Dept. American Red obtainable from the First Aid Dept American Red Cross It is a hermetically scaled tin case, 4 inches (102 centimeters) by  $2\frac{1}{4}$  inches (58 centimeters) and less than an inch thick It is easily opened by pulling on the ring This packet contains two "wound bandages" properly folded and packed in oiled, impermeable paper A smaller package contains 2 sterile safety pins Each dressing bandage is  $3\frac{1}{2}$  inches

(9 cm) wide and 21 yards (2 meters 6 cm) long. In the centre of this bandage is a square, thick pad of 31 inches By unloosening a simple thread the pad can be made to measure 3½ by 7 inches"

The following directions accompany each packet (on a

slip of paper, inside the container)

(1) If there is only one wound, carefully remove the paper from one of the two packages without un folding the compress or bandage and hold by grasping the outside rolls of bandage between the thumb and

fingers
"When ready to dress wound, open compress by pulling on the two rolls, being careful not to touch the inside of the compless with fingers or anything else Still holding one roll of the bandage in each hand, apply the compress to the wound, then wrap the bandage around the limb or part and the ends together or fasten with safety pins. The second compress and bandage may be applied over the first or it may be used for a sling if the aim is wounded or to bind both legs together if one is injured

"(2) If there are two wounds opposite each other, apply to one wound a compress without unrolling the bandage, and hold it in place by the bandage of the

compress used to cover the other wound

"(3) If there are two wounds not opposite each other,

tie a compress over each

"(4) If the wound is too large to be covered by the compress, find and break the stitch holding the compress together, unfold it and apply as directed above "The first-aid packet is ideal The models used by

European and the Japanese armies are not as good as ours For wounds from cannon shells, which, as will be seen later, may tear off one or more extremities or extensive portions of the human body, larger sized dressings are issued This will apply to troops garrisoning for tifications and manning battleships

In spite of the simplicity of the directions accompanying the first aid packets, it is of course best to instruct all officers and men in their use before the beginning of a campaign. After a man is wounded he is too excited or too helpless to pay much attention to printed matter By training in time of quiet, the packet will be applied automatically, so to speak, when it becomes actually needed"

### ANKYLOSTOME INFECTION IN INDIA.

Ir is now established that ankylostome infection in India is due to three allied but different parasites, viz, Anaylostoma Duodenale, Necator Americanus and Ankylostoma Ceylanicum as recently pointed out by Major Clayton Lane, IMS

in these columns (June, 1913)

The ever useful Tropical Diseases Bulletin
(Vol I, No 12, May 15, 1913), gives a résume of

recent literature on this subject

Di L F Johnson (Teras State Il of Med, March, 1913), investigated 241 cases of what he calls hookworm disease basing his diagnosis apparently of the 'disease" on the discovery of the ova in the fæces Perfer (Archiv f Schiffs u Trop Hyg, October, 1912), describes his experiments as to how the parasite enters the human He concludes that earth or mnd eating is not a factor in producing infection in a few cases the larvæ may be swallowed in drinking water, but "the usual way of infection is undoubtedly by way of the skin, the larvæ being either hrushed off the damp grasses or taken up from the infected soil by the feet " It is, however, now admitted that Looss' view is correct, and that the larvæ enter the skin through the han follicles

giving rise to such eruptions as ground-itch

(panighao) \*

The distribution of these parasites is very widespread in India and the tropics generally A recent paper by P Milloos shows the prevalence of helminths in Indo-China In 1912 out of 1,012 stools examined in 572 infected persons, 57 per cent of persons were infected with the parasites

Schuffner and Vervoort (Munch Med Wochen, Jan 1913) have experimented with a volatile oil prepared from Chenopodium anthelminticum (Official in U S A Phai macopæia) It is said to be useful in 16-minim doses, but it is expensive

Senior grade S-A-Surgeon S M Das, of Kurseong, writes to point out an error on p 224 of Captain Juke's article in June issue of the  $I\,\,M\,\,G$ The Dalai Lama did not visit Kuiseong, and cases of spuillai fever have not been found in the town of Kuiseong In the article the word Kurseong was a slip for Kalimpong, but a tea gaiden, about 8 miles from Kurseong, has had a few cases

M1 T Southwell, FLS, FZS, Deputy Director of Fisheries in Bengal, hasa valuable article on the parasites of fish in Records of Indian Museum (Vol IX, p 12, June 1913) Fortunately Mr Southwell is able to tell us that "as far as we know there are no fish parasites capable of infecting man" In Europe the larva of the Bothriocephalus latus occurs in the Pike and is transmitted from this host to man The damage done by this parasitism is to the fish themselves and in tanks the effects appear to be cumulative and the infected fish are thin, emaciated and lacking in vitality

An editorial article (J A M Assoc, May 3) it is stated that  $300,000~{\rm lb}$  of morphine is made from opium in the United States and that 80 per cent of this is used illegitimately, ie, by victims of the morphine habit Thuteen years ago the U S A Government began to legislate against cocain, yet it is "now reliably estimated that its illegitimate use exceeds 150,000 ounces every year

## Reviews

Protective Inoculation against By W. M HAFFKINE, Bacteriologist with the Government of India Calcutta and London, Thacker, Spink & Co.

THE present note, writes Dr Haffkine, has been written in connection with certain official correspondence regarding vaccination against cholera and the preparation of a devitalised form of anti-cholers vaccine It is divided into three parts, viz. the preparation of an anti-cholera vaccine, immunization of man against cholera and the anti-cholera vaccine after its devitalisa-It is pointed out that such is the variability of the germ of cholera that it is essential to first select the particular variety of the germ which is to be selected as "authenic and appropriate" We make the following extracts -

The formula given by me in 1892, in the transactions of the Paris Biological Society, for obtaining a cholera virus of staple properties, contains the following three

- The series of cultivations must be begun by giving the first animal a superlethal dose of virus, so as to obtain a rapid effect and to find, upon the death of that animal, in the fluid exudating into the peritoneal cavity, a remnant of resistant germs surviving the destruction of others
- 2 On the death of the first and of each succeeding animal, the serous fluid found in the peritoneum (or else a culture of cholera germs made from that fluid) must be aerated for a few hours, before being injected into the peritoneum of another animal, and, lastly,
- 3 For this latter injection, an animal of greater bodily weight then the previous one must be taken, if the amount of serous fluid found in the peritoneum is small, and vice versa

I ascentained at the time that this formula was applicable not to the cholera germ alone, but also to others, in particular to the bacillus of typhoid fever

"GENERAL RESULTS OF THE ABOVE STUDIES"

The facts of general significance revealed in the course of the studies detailed above were the follow

ing
(1) "active" immunization, realised by means of a purely bacterial vaccine, as contrasted with immunization by means of lymph and tissue of another, previously moculated, animal, was effective in application to man,

- (2) such immunization could be carried out with safety during the progress of acute and fatal outbreaks, as was, eg, the outbreak in the Durbhanga Tail, and the febrile and other reaction caused by the injection of the vaccine, in the doses used by us, did not increase the susceptibility to infection among the inoculated and did not aggravate the disease when an inoculation happened to become infected during the progress of that reaction or during the days immediately following,
- (3) the development of a rapidly incubating disease, such as cholera could be mitigated or entirely averted by applying the same form of immunication to in dividuals previously infected, in whom the disease was already in the incubation stage. This late fact, theoreti cally of a much more paradoxical nature than the others (vide p 92), received in the next two years (1897 and 1898) extensive confirmation in the results of the antiplague inoculation, which was planned upon the results of the inoculation against cholera, and the principle thus established was adopted for guidance in therapeutic practice and applied in treating diseases actually developed, first tentatively, by some of my co workers in India, and subsequently by Sir Almroth E Wright who leained it during his visit to India as member of the Planta Commission of 1902, 1904, It must be the Plague Commission of 1898-1001 mentioned however, that, at the time, the Commission did not see their way clear to acquiesce in the validity of the discovery and in their official report pronounced themselves against the application of inoculation in the incubation stage of plague Inoculation as a remedy against a condition of infection developed beyond the incubation stage has since been extensively tried,

<sup>\*</sup>The connection of panighao with ankylostome infection was first clearly pointed out by Dr C A Bentley, in Assam It is strange that credit is not given to him for this discovery even in the most recent books on this subject, nor for his use of Beta naphthol—ED, I M G

and its effects and degree of actual utility in such

circumstances are studied in many diseases Another feature of anti-cholera moculation, which was taken into account in devising the plan of the was taken into account in devising the plan of concentration against plague, was that, while the incidence of cases of cholera and—parallel with this—the incidence of deaths from that disease were powerfully in fluenced by the inoculation, no effect of any constancy was observed upon the recovery rate of the inoculated attacked, a result which, unfortunately, went against the expectation suggested by a priori consideration of the matter (vide p 35) In devising the plan of moculation against plague, endeavours were made to affect favourably also recoverable rate, and, apparently in answer to the measures adopted, the result proved successful

Subsequent work by various experimenters and by myself regarding the immunization of man against cholera, typhoid and plague was a continuation and

outcome of the studies of 1890 6

### "GENERAL SUMMARY"

On pages 37-72 of this Note a description has been given of the experiments by means of which the possi bility of immunizing man against cholera has been demonstrated in the studies in India with live vaccine "II" The nature and the mode of preparation of the

vaccine are described on pp 25 31

A number of observers have concluded from this result, and by inference from observations on animals and on human blood serum, that the same vaccine in a devitalized condition, as used tentatively in the author's exteriments of 1892 93, and again, on a somewhat larger scale, in 1900, was also likely to be useful (pp. 81, 88) The further study of that preparation in India has been delayed by the advent of the plague, but the above expectations are justifiable. An investigation on the subject, made in the midst of actual outbreaks of cholera, under conditions of accurate scientific research following the lines which have been described in the preceding pages, is desirable, in view of the advantages which a devitalized prophylactic offers in practical application, and of the great difficulties in the way of using live vaccine on an extensive scale, under the conditions pre vailing in many parts of the country

Just as it was important to obtain first a positive result on the question of cholera immunization in general, and to use, in investigating that matter, the most reliable vaccine preparation, so it is important to avoid in the beginning the possibility of failure in the study of the vaccine in a devitalized form. For this reason it is preferable at present to use the devitalized vaccine in its entirety, as against extractions or other derivations of it. The facilities of manufacture in the case of the entire preparation are also of considerable

In devitalizing vaccine "II" it is essential to employ only the most delicate physical and chemical processes

Two forms of that vaccine in devitalized condition commend themselves to the author from first investi-

One, prepared by prolonged cultivation in a fluid medium and devitalized by heat and carbolic acid,

and another, prepared by cultivation on a solid medium and devitalized, as soon as developed, by a solution of the same antiseptic compound

The study of the protection derived from the employment, separately, of these two forms of vaccine in various doses should afford information as to the direction in which the plan will require to be modified for further

Our Outsides -By W T FERMIF, WD John Wright & Sons, Ld, 1913

This is a quaint book At first we did not know what to make of it, but as one reads it, one is bound to be fascinated. It is a farrage of It is a farrage of extracts, quotations and folklore, and deals with

all sorts of subjects · physiognomy, foreheads, noses, eyes, ears, clothes, handshaking, dwaifs, adipose tissue, stature, diffidence, "the sphinxface" second childhood and the complexion is, as we say, certainly interesting Di Fermie is a veteran of the profession, he was qualified in 1854, and we have read with pleasure his other volumes, "Herbal Simples," "Meals Medicinal," and "Precious Stones

### SPECIAL ARTICLES

SOME NOTES ON SURGICAL EXPE-RIENCE IN THE TURCO-BALKAN  ${
m WAR}$ 

On November 31d, 1912, the British Red Cross Society sent out to Bulgaria two Units to assist in nuising the wounded

The Units for Turkey, Servia and Montenegro

had already started

Major Birrell, RAUC, was in command of No 1 Unit, and Major Corree Hudson, IMS, of The former—as senior officer—was No 2 Unit Director of the combined Units

Each Unit had 3 Surgeons, 4 Diessels and 13 Rank and File, who acted as nursing and general

duty orderlies

The other Surgeons in No 1 Unit were Captain Byam RAMC, and Di Clarke, and of No 2 Unit Di O'Leary and Di Pasley On our arrival at Sofia we found a great lack of doctors, nearly all having gone to the front, and we were consequently called upon to attend cases about the city and kept quite busy whilst remaining there

Orders, however, were soon given for us to proceed nearer the front, and we railed to Stara

Zagara

En route we were presented at Philipopolis to Queen Eleanora, and were then told we were to go to Kirkillisse (Lozengiad)

At Jambouli we unloaded the baggage from

the train and placed it in bullock carts

We had the honour of dining with His Majesty King Ferdinand before we proceeded by road to march to Knkillisse

The roads were extremely badly cut up by the Artillery and heavy waggons that had travelled over them They were very heavy going, and a sea of mud In many parts there was no appearance of a road at all, merely a track

On reaching Kirkillisse we found there was no Hospital for us to go to and it was some days before a Turkish Barrack was given us to convert

into one

On the journey we had met many convoys of They were in bullock carts-2, 3 or 4 wounded in each and had no visible attendants, and no medical officer in charge They were being transferred from one Hospital to another nearer the base

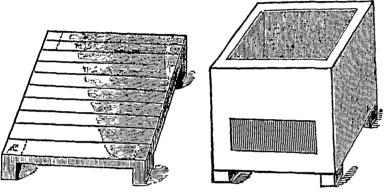
The Barrack given us was indescribably dirty. The whole of the top floor and staucases had been used as a latrine, and the top floor was filled with old Barrack furniture, broken cartridge boxes, rubbish and filth

It took 5 days to clean and whitewash, everyone working hard, cleaning materials, such as soap, brushes, brooms, flannels etc we bought locally

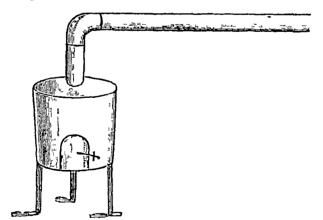
There were about 200 bedsteads, with non frames and wooden laths which when cleaned did well for the patients

Mattresses and pillows we made out of canvas, and packed with straw procured from surrounding villages

A simple incinerator was made out of stones, mud and iron bars which did well to burn all the Hospital rubbish and diessings in The illustrations shows the type



For warming the wards a locally made iron stove was used which had a chimney, which went a long distance in the ward before being led through the wall and outside, so —



Wood was the fuel used

The cook house was for most of the time in the open, protected merely by a wind screen Congo stoves were used

Water had to be carted 2 miles in a barrel by

bullock cart

The wards were arranged as follows .--

Ground floor

Ground floor

Ground floor

Ground floor

Surgical Dressing room
3 large wards
1 small ward

Operating room
Ward kitchen
3 large wards
2 small wards
Quarter master's stores and food
stores

The total capacity of the Hospital being 138 with plenty of bed space but for 200 it was rather crowded

As regards the operating room after we had thoroughly cleaned it we painted all the woodwork white, and then placed into it a shelf almush with a glass front also painted white which was used for instruments and dressings

The operating table we had brought with us and so also 2 copper boilers, 1 Schimmel Busch sterilizer, white enamel basins, jugs and trays We added to the furniture by covering two large tables with the zinc obtained from old cartridge boxes, and these did well as side tables for lotions, dishes, bowls, etc. For instruments we had 2 modern army instrument cases with some additional instruments, such as bowel clamps

The above with diessings, sutures, jubber gloves, caps, gowns and masks and chloroform in Burroughs and Wellcomes glass phials completed our equipment for the Theatre The floor we covered with linoleum, and bought zinc foot tubs to catch fluid, drity dressings, etc

Mr Cox—the X-ray operator—had meantime prepared his apparatus, and ran through a wire into the Theatre so as to give us electric light there

Five days from the commencement of cleaning the Bailacks the first batch of wounded allived and filled the Hospital

They came in the middle of the night There was no medical officer in charge, or any trained orderlies. There was no nominal roll of the men, nor of their injuries. The men were half frozen, hungry and had not been dressed for

anything up to ten days

All the wounds were septic. The men's clothes were full of lice. Compound fractures had no splints applied, many of these cases were compound fractures of the thigh in a highly septic condition. They had travelled by bullock cart over a bumpy road, and as they had had no one to attend to them and help them to get out for purposes of nature, their condition was extremely had

As regards dressings, they had been dressed with cyanide gauze and wool and bandages, but not first field dressings. Only a few regiments had had these

The wounds were tightly plugged with gauze, and in consequence blood and pus had tracked up and down the thigh or leg very extensively, stripping muscle off the bone and bagging wherever it could On removal of the plug, pus poured out like water from a tap.

We had an opportunity of applying ourselves an English first field dressing to a case in which the bullet entered the left testicle, passed under the pubic aich and out at the left buttock behind This case healed by first intention and was fit for duty in 14 days

An almost exactly similar case plugged with gauze and septic came to us later, and this case had to have 2 operations and was sent to the base to convalescence  $2\frac{1}{2}$  months later

One must remember, however, that the number of medical officers at the front was limited and could not have been enough to cope with the large number of wounded, and certainly not enough to spare any for convoy duty, and as there were-except in a few regiments-no first field diessings the cases had to await their tuin, and so perhaps this will account for the septic condition of the wounds

We noted that there were few head, abdominal and chest wounds compared to wounds of the extremities and face To account for this one could give several reasons

One is that in the shallow trenches hastily thrown up the legs, face and arms were the parts most exposed, so —



Secondly —The severer cases died, not being able to get sufficient attention

Thindly — The severer cases were kept at the front and not sent back to the nearest Hospital, and only later sent back and then right to the base, missing the intervening Hospitals

Whatever the reason, leg cases predominated both in bullet and shiapnel wounds We saw no bayonet wounds Shiapnel gave the graver The bullet was very conical and made wounds



a small entrance and exit wound Few cases showed any explosive effect unless bone had been

The most striking feature was the large amount of pus which had burrowed in all directions

The following were the types of surgical wounds treated-

Compound fractures of the femur

2, " " tibia n n fibula Wounds of the face

" " hands n , feet

A lesser number of-Lung wounds Liver Perical dium (one) Pleura

Skull (one) Intestine (one)

The following operations were performed—

Removal of comminuted bone

Extraction of bullets

3 Dramage of pus

4 Amputations

Arterio venous aneuiysm (one)

Perforated intestine (sewing up)

Trephining (one)

Skin grafting

Of these Nos 1, 2 and 3 were the operations mostly done

Conservative surgery was persevered with all through, and it was most astonishing and gratifying to see how well even the worst cases seemed to do with free drainage, removal of comminuted bone, and extraction of the bullet or shrapnel

All the fractured femuls, with one exception did well The exception was from the first a hopeless case in which amputation was strongly unged, but unfortunately obstinately refused The fractured femurs were put up on Hodgen's or Liston's splints—the former manufactured in some cases from non mosquito poles and rope, and acted most successfully

One case had a bullet entering the left Lyomatic fossa, traversing the left antrum and then through the nose and out at the right infra-oibital foramen Placed by a window one could see through this man's face The wound however, healed up successfully in a very short tıme

In another case a bullet penetrated the pencardium, lung and liver This man lived fortnight, but then died of hæmorihage from the liver We found even big gaps in bone budged over satisfactorily and union occurred with the help of careful dressing and clean-Iodine was used for lotion, and for sterilizing the hands and skin, a solution was used as spirit was scarce watery extremely well and was most portable this as our antiseptic we were able to overcome the septic condition of the wounds, which, once clean, healed quickly, and so we were able to pass on the first batch of wounded and take in others from time to time

The main points of interest were-

The use of a proper first field dressing and the disadvantage the wounded suffer from when having none

The bad effects of plugging wounds

The remarkable way wounds yielded to conservative surgery, however bad they appeared 4 The value of rodine solution as sole antiseptic

5 The fact that compound septic fractures of the femul became healthy and united even after a journey of ten days or more in which they had been bumped about unsplinted in a springless bullock cart

CORRIE HUDSON, DSO, FRCS,

MAJOR, IMS

#### $\Pi$

#### THE MADRAS GENERAL HOSPITAL.

As usual this valuable report is printed and contains much of interest to our readers, we shall therefore make liberal extracts from it. The number of beds is 500, practically equally divided between medical and surgical

Major C G Webster, INS, who submits the report, comments on the great need for a special hospital for tubercular diseases and the bad effects of treating such cases or enteric fever cases in general wards, and these views all medical men will endorse. The number of "malaria" cases treated has almost doubled in 1912, but here the question of diagnosis comes, as this department is so understaffed that proper blood examinations cannot be made. The number of students was 204, and 15 sub-assistant surgeons attended for a post-collegiate course.

We shall now make extracts from the medical officers' reports on the work in the various wards

On the use of **Emetin** (a là L Rogers) we may quote a few remarks Major F F Elwes Cle, writes —

"Hepatitis and Emetine—Major Rogers' method of subcutaneous injection of emetine was used with great success in two cases of acute hepatitis. In one of these cases, the fever which ranged from 100° to 103° was said to have existed for 18 days when the treatment was commenced Emetine hydrochloride ½ grain was injected on three successive days, the temperature fell and did not rise above normal from the third day after the last injection."

### Major Webster writes -

"Amæbic Dysentery and Emetine Hydrochloride —Very many cases of amæbic dysentery were treated by subcutaneous injections of emetine hydrochloride, and were rapidly cured. The doses used were  $\frac{1}{3}$  grain in some cases, and in others  $\frac{1}{2}$  grain. No vomiting or depression ensued in any case with the use of this drug. In some of these cases the cures obtained were remarkable indeed. The rapidity with which marked improvement follows an injection of  $\frac{1}{2}$  grain of emetine hydrocloride is of great diagnostic importance, for cases of bacillary dysentery and other non-amæbic causes for the presence of blood and mucus in the stools do not appear to be benefited by the drug."

### Captain Ingiam, MD, writes -

"Dysentery —One hundred and seven cases of dysentery were treated in all, of whom nine died. In the latter part of the year fresh stools were specially examined for amœbre. My experience in this respect is in agree ment with Major Rogers', that if actively motile amæbre

are present in the fresh stools, another dysentery is almost invariably present. Sometimes another are not found on the first examination, but can be found on examination of another stool, very rarely are they absent in two stools, but yet present in a third. One case of, I believe, tubercular ulceration of the intestines showed some amother in the stools, similar observation previously have been made by other observers.

The class of cases in this hospital are very rarely so acute or severe as those described by Major Rogers in his papers. In this hospital many of them are chronic or sub acute cases, with a few acute cases mainly among

the City Police"

"Emetine Hydrochloride—Thirteen cases of amoebic dysentery were treated with injections of emetine hydrochloride partly prepared for me by the Chemical Examiner and partly prepared by the Professor of Materia Medica. The treatment was in every case successful, sometimes alone, sometimes in combination with laxatives and enemata.

I have used emetine injections also in the treatment of Hepatitis, and I experimented with it in Kala azar and Chrhosis of liver. I now give two grains by subcutaneous injection and once only have I found this to be followed by vomiting. The very gratifying freedom of this method of treatment from evil effects renders it possible to use it early in all cases of doubtful diagnosis and I have found it now possible to cure Hepatitis very rapidly in this way.

One obscure case I desire to record here —A.M, male, aged 34, admitted on August 20th with a history of a month's fever. On admission he had hectic fever of an irregular type, some jaundice and pain in the right side of the chest, enlargement of the spleen and hiver Various methods of treatment were tried up to the 12th September without any success. A daily injection of emetine hydrochloride I grain was given for seven days, with the result that his fever gradually declined and the joundice cleared up completely. I saw him in the middle of October and he then told me that he was quite well

Major Webster quotes the following case of

"Untrania — An Eurasian named J P L., aged 41 years, resident of Pursewalkam, was admitted to the wards, with fever and generalised rushes all over his body. His temperature soon after admission into the ward was 978° F and later on rose up to 103° F He gave a history of rapid onset of these rashes accompanied by intolerable itching all over the body. His blood was taken and examined and found to contain schizonts and gametocytes of benigh tertian, malarial parasite. His temperature came down to normal the next morning and all his rashes disappeared with his fall of temperature. When next morning his temperature went up again to 102° F the rashes reappeared concurrently. This was then a case of untraria perstans, associated with benigh tertian malarial fever."

Pulmonary Tuber culosis — Cure by Bacıllary Emulsion An Indian Christian, aged 20, resident of Pudupet, was admitted to the wards on 2nd July 1912 with a history of fever and slight cough and expectoration, lasting for eight months prior to admission. Physical examination on date of admission showed slight diminution of movement on the right side of chest, slight depression of the right infra-clavicular fossa, and diminished resonance on percussion in right apex (front). Microscopic examination of sputum did not show any tubercle bacıllı. The case was however suspected to be one of T. P. localised at the right apex and subcutaneous injections of old tuberculin were given in doses and on dates specified below.

2/10 mg on 6th July 1912, 1 mg on 9th July 1912, 5 mg on 13th July 1912, and 10 mg on 18th July 1912. On 19th July 1912 a few moist iales were heard in the right apex and the sputum, repeated examination of which up to now did not show any bacilli, showed on this occasion the presence of tubercle bacilli. The diagnosis having been confirmed thus, injections of bacillary emulsion were given with a view to cure the patient. The initial dose given was 120,000 mg on 4th August 1912. The dose was gradually increased on each successive occasion with due care and piecision. The last dose the patient had was 1 mg on 13th December 1912. Considerable improvement was noticed during the progress of the injections. Very careful search under the microscope did not reveal the presence of any tubercle bacilli in the sputum since 29th October 1912.

The patient's weight on date of admission was 89lb and on date of discharge 103lb This patient has been

discharged, cured

### Major H Kirkpatrick writes -

The death rate in cases of pulmonary tuberculosis has almost doubled itself as compared with that of last year Most of these cases are far advanced when they are admitted into the hospital and this year five cases were admitted moribund

Treatment with intravenous injection of iodoform has been tried in a few cases, improvement resulted occasionally, but patients insist on leaving hospital if they improve at all as they dislike the prick of the needle Several patients refused to continue the injection, in spite of this I cannot believe that the treatment is at all painful or unpleasant beyond a slight taste of iodoform

The total number of malaria cases treated is 70 as compared with 41 of last year. This is an unmistakable evidence of the increase of malaria in Madras

Twenty cases of Kala azar have been treated (as agrunst 16 of last year) with 3 deaths. Two of these were admitted in a moribund condition. The death-rate of Kala azar has slightly increased.

Next to pulmonary tuberculosis come the valvular diseases of the heart, the diseases of the digestive system, and dysentery, all the three of which seem to have assumed an equal importance this year, both in the matter of admissions and in making up the mortality

Cases of Bright's disease have fallen from 54 last year to 35 this year. There is also a marked diminution in cases of intestinal parasites, 19 cases being treated as against 30 last year.

Captain A C Ingiam, MD, gives a good account of the work in the Fourth Physician's wards —

He refers to two cases of heart trouble from excessive smoking of "American cigarettes"

A case of Ulcerative Granuloma of the Pudenda was treated with three "Sabouraud pistille doses of X Rays at intervals of about a fortnight" and parasites could no longer be found in smears from the sore

Rhinosporidium Kincalyi \*—Fresh material obtained from two cases under the First Surgeon was taken to Guindy and in conjunction with the Director of the King Institute attempts were made to inoculate monkeys, guinea pigs and rabbits without success

Diabetes Mellitus — Two cases were treated with rectal injections of dextrose according to Major F Foulkes's method. The treatment did not appear to me to have any effect at all on the progress of the disease

These wards for natives remain as the statistics of patients discharged, relieved and otherwise shows to a large extent a home for the decrepit and incurable, perhaps tubercular cases are the most difficult problem,

many of them come to hospital in the last stages of the disease, quite incurable, owing to their duty habits they are a source of danger to their neighbours even in hospital, yet to refuse admission to hospital to them does not benefit the reputation of the hospital Moreover, the dusty atmosphere of Madras is not over-suitable for the treatment of cases of pulmonary tuberculosis Possibly in course of time the slow development of the Coronation Memorial Sanatoria, dispensaries, etc., may assist to solve this problem. But this aid still looms in the far distance

The treatment of dysentery and enteric fever in the general wards is another problem which at present admits of no solution, as there are no facilities for isolation. At least three cases acquired dysentery and one enteric fever in the year during their stay in the wards for other causes. Fly infection appears to be responsible for these accidents

The Surgical records of this hospital are always of great interest We quote the following extracts from the works in the wards of Major T H Symons, I M S

Wining for Fractures (2 cases)—(a) Patella—In this case the fracture was due to direct violence and there was a wide gap between the fragments Ordinary methods to secure union failed and operative measures were resorted to As the patient was old, the open method was not done Barker's operation was the one performed and kangaroo tendon was used. The result was excellent

(b) Lower jaw — This was a case where a patient had a fracture of the lower jaw, resulting in non union after a period of nearly one year in spite of all sorts of treat ment. The fragments were wried by silver wire and the patient was discharged with good result, having been able to eat solid food which he could not do before

Evension of Love: Jaw (10 cases)—Three died and 1 remaining Most of these cases were for epithelioma of the lower jaw and cheek The death in these cases were from Septic Pneumonia

Excession of Elbow (4 cases) —Three cured and 1 is still in the ward

Major Amputations (14 cases) — Three remaining and the rest cured Trepbining (for Compound Comminuted Fracture Skull) the only case undertaken died

Laminectomy (for Traumatic Paraplegia) (1 case) -The patient was admitted into hospital eight days after a fall on the spine There was no control over micturition defectation and he had complete an esthesia and loss of motile power of both the lower limbs The last dorsal vertebra was found to be pressing on the cord and its lamine and spinous processes as well as those of the first lumbar were removed. The patient died on the eleventh day after operation owing to sepsis from the bladder spreading to the kidneys, he had very virulent cystitis on admission which did not improve in spite of The motor and sensory systems were not treatment perceptibly improved by the operation, but the patient knew when his bladder and rectum were acting, a thing which he could not feel before operation.

Mastord Abscess (14 cases) —Thirteen cured and 1 remaining

Gastro-Jejunostomy (Posterior) was done in eight cases for dilated stomach due to pylonic stenosis and for gastric and duodenal ulcers. One patient died, one did not improve by the operation and one is still remaining. In all the rest the results were most satisfactory.

Appendicectomy was done in fwo cases for Chronic Colitis The results were good in both, patients showing marked improvement. Both these cases had been under medical treatment for a long time prior to operation without avail

Perforation of Intestine with local Peritonitis—The patient was admitted into medical wards on the 12th November 1912 and having been diagnosed to be a surgical case, it was decided to operate on him on the 13th November 1912 On examination per nectum a lump

<sup>\*</sup> Named by Minchin "R Kinealyi" from a specimen shown in 1903, by Lieutenant Colonel F O'Kinealy, I MS In Castellani and Chalmers' Tropical Medicine new Ed, page 437 it is described and named R Seeberi, Wernicke 1896, as it was described by Dr Seeber in Buenos Ayres in

was felt on the left side. There was bile stained vomit Pulse 86 a minute Patient looked very ill, abdomen rather rigid and tender between left anterior superior spine and umbilious. On opening the abdomen inodorous fluid was found in the peritoneal cavity. Intestine was injected and distended. Recent adhesions were found, and on separating them a small perforation was detected and sewn up As the distended gut could not be returned into the cavity, it was punctured and a pint of feed fluid led out. Two drainage tubes were put in. The after progress of the patient was uninter. impted and he was discharged cured on 31st December 1912

Colotomy (Iliac) was done in two cases of advanced Carcinoma Rectum One patient died and the other was discharged from hospital after some time. The colotomy in the latter case was done to relieve the almost complete obstruction caused by the growth

Appendectomy (27 cases)—All cured In the majority

of cases the appendix was removed during the quiescent

Appendicular Abscess — Ten were operated and drained Out of these one died. This patient showed no lencocytosis and there was very little attempt on the part of the peritoneum to isolate the infected organ

Strangulated Inguinal 13 cases. 8 cuted and 5 died Obstructed Both died 2 do Reducible Inguinal 59 do 57 cured and 2 One of died Uræmia (chronic intestitialnephii tis) and the other of telanus Vential do All cured Irreducible Inguinal One died (a large do heima in an old man Operation was done at the request of the patient who never recovered from the shock died and the same evening)

Hepatic Abscess (18 cases) -4 died Two of the cases that died had multiple abscesses, one had advanced tuberculosis of the lungs and in the other the abscess had already burst into the peritoneal cavity before operation All the amcebic cases were put on Ipecacuanha and Auto-vaccines were also tried latterly on Emetine with good results

Besides the operations above mentioned 16 abdominal sections were also done for tubercular peritonitis, peri gastric adhesions, hydatid liver, Anemysm of abdom ınal aorta, Tuberculai c ecum, Curhosis livei, Malignaut disease livei, Retro peritoneal saicoma, General peri tonitis and Aneury sm of coeliac axis, etc

Suprapubic Prostatectomy -Six cases were done Four cured and 2 died

Captain E W C Bradfield, FRCS IMS gives details of the following two cases -

Remoral of foreign body from the lung - The patient a European child, was admitted with a history of a pin having slipped into the trachea X 1ay showed the pin lying at the level of the 4th 11b and two inches from the front of the chest The pin, 13 inches long, was lying transversely Low tracheotomy was performed, and by means of the bronchoscope the pin was seen lying across the bifurcation and fixed in the lung. Some difficulty was experienced in dislodging the pin from the lung, but after one or two attempts the pin was successfully The patient made an uninterrupted recovery

Tuberculous disease of bones and joints -Thirty three cases were treated in the wards located as follows Hip 14, spine (Pott's disease) 9, ankle 3, knee 2,

foot 3, elbow 1, and wrist 1 Of these, 24 were only relieved or discharged at their own request, and con sidering that the average stay in Hospital, including five cases of over six months, was only six weeks, the small percentage of cures is not surprising. These patients will not undergo treatment for a long enough period, but as soon as they begin to feel a little better misist on leaving the Hospital generally to return in a much worse condition after a few months. Many cases are seen which, if they would only submit to proloi ged rest and treatment for 12 months, should be cured. Unfor tunately they have not the necessary patience or fall a prey to the effects of then own treatment

Capt A J H Russell, wb, Bch, 1 Ms, gives the following details of the work in his wards -

Intestinal obstruction — This was a case of obstruction of small intestines about two feet above the ileo creal valve apparently caused by the sigmoid which was impacted with hard facal accumulations passing over the middle line to the right side and entering the pelvis on the light side. The patient had been admitted six weeks previously for a similar condition, which was relieved by enemata. Enemata failed to relieve on second admission and a laporotomy was performed. The sigmoid and descending colon were massaged and emptied

Inquinal herma -The only deaths in 52 cases was a case of obstructed herma, with three days' constipation The bowel was in the verge of strangulation. He died

two days after operation

Gastro enterostomy - The only case operated on, died the day of operation Post mortem examination revealed that the stomech was small and contracted, while the second part of the duodenum was incorporated in a thick firm adherent mass, formed by the under surface of liver, gall-bladder, gastro hepatic omentum and head of The common bile duct and portal vein were incorporated in the mass of fibrous tissue Gall bladder was much thickened. No leakage at operation site Liver abscess - In one case, a European, the liver pus

was aspirated and 200 c c emetin soln, grs 4 to 1 pint, was injected into the cavity Temperature fell to normal and remained so At the end of a week, a prinful swelling developed over appendix region and on operation 21 pints of liver pus were removed retro peri toneally, the abscess cavity extending as high as the lower maigin of the liver. A discharge of bile from the wound continued for a few days and ceased completely all on a sudden and the patient is now well on the way

Appendicectomy - One of the cases was that of a Eurasian boy who had been ill three days On admis sion his temperature was 994 pulse 84, and the only untoward symptom was a slight abdominal distension Immediate operation was performed and the appendix was found to be practically gangrenous and on the point of bursting It was removed with some difficulty and a drainage tube was left in right that fossa for 48 Temperature nevel went above 100° and patient

made an uninterrupted recovery

Salvarsan injections — A large number of these were given for syphilis in all stages. The intravenous method of injection was uniformly carried out. In those cases which remained under observation for a period, the fact, that the best results are obtained when mercury is

given regularly after the salvaisan, was amply confirmed Vaccine therapy—Those for staphylococcal infections give uniformly excellent results—Those for streptococcal infections were more varied in result, while gonococcal vaccines for the chionic cases of gonorrhoal synovitis so commonly met with in Madias gave very disappointing results

The following remarks by Capt A P G Lorimer, M B, the Resident Medical Officer, shows that much has yet to be done to make the

outpatient department as useful as it ought to be in a fine hospital in a big city like Madias --

The work of the Out patient Department has been carried on as described in last year's report An increase of 3,480 Indian patients may be noted, though there is a slight reduction in the number of European patients attending It will be seen from the tables attached that the suboidinates (Assistant Surgeons and Sub Assistant Surgeons) have been frequently changed, while for long periods the staff of students working in the Out-patient Department have been quite inadequate to deal with the work. I have found that between 25 and 30 students are required for the proper carrying out of the work, but frequently and for considerable periods I have had to work with eleven or twelve. Until it is possible to increase the staff, both medical and clerical, in the Out patient Department, no precise or accurate statistics can At present the limited staff and the uncerbe prepared tainty in the number of student workers make not only the statistical results unsatisfactory and maccurate, but reduces the therapeutic value of the department very When it is considered that in any up to date hospital the Out-patient Department is not one institution but a collection of departments, each with its own system and staff (eg, Skin Department, Ear, Nose and Throat Department, Surgical, Venereal and Medical including special facilities for the examination and treat ment of diseases of the chest), it is plain that the present state of this department with only one Medical officer, in insufficient and changing staff with no facilities for separation of different classes of disease is not such as to render possible the carrying out of accurate and system. atic examination and treatment. The results of such a state of affairs are very far-reaching, for example, many chronic cases which might be well treated as out patients have to be admitted into the wards because of the lack of the necessary accurate supervision and attention Naturally this interferes with the accommodation in the hospital available for acute cases who should have first

For several months Dr Ramaswami kindly volunteered to undertake the examination of cases suffering from diseases of the ear, nose and throat Temporaly accommodation was placed at his disposal on the upstairs verandah of the out-patient building Cases requiring dark room examination and serious operation have been at tended to after out latient hours by Major H Kink patrick, ims, who kindly undertook this part of the work A daily attendance of nearly 50 patients has

It is a pity that the other big hospitals in India do not follow the example of the General Hospital Madias and thus fully print and publish then annual reports

#### III

## CANAL ZONE MEDICAL ASSOCIATION \*

OCTOBER 1911 TO MARCH 1912

(Vol IV, Pt 2)

As usual the proceedings of the Canal Zone Medical Association are full of interesting matter

Dis Dailing and Clark describe an unusual type of tuberculosis, called by Adami "Chronic hyperplastic tuberculosis' in a Jamaican Negro The same writers describe two cases aged 23 of infection by Lingualata Serrata in a native of Central America The larva was parasitic, but

no doubt hannless, and the patient died of Curhosis of the liver

"Virchow found the parasite in Wurzburg and Berlin, Wagner in Leipzig, Frenichs in Breslau, five times in 47 autopsies Zenkei first called attention to the occurrence of the laive in man, having found it nine According to times in the liver in 168 autopsies Zaeslin two cases occurred in Basel in 1,914 autopsies At Kionstadt, larvæ were found six times in 659 autop sies, most frequently one or two specimens being found in the liver Friedberger and Frohner state that the parasite is found more commonly in some districts than the others They found it frequently in Berlin, but only exceptionally in Munich Hering found it once only in Stuttgait, while Colin found it in 64 out of 630 Parisian dogs examined The parasite seems to be present only in the larger breed of dogs, such as mastiff and in the butcher's dogs, and was found oftenest in the ethmoidal cells firmly attached to the mucosa"

The adult of L senata is more rarely found than the larval forms, but are most frequently found in the nasal and an passages of dogs and An account of these parasites is given in Castellani and Chalmers' new edition, page 621

Di R C Connoi described a case of tetanus with a six-day incubation period, he recovered and was treated with antitetanic serum

Lt -Col John L Phillips U S Army, Assistant Chief Sanitary Officer and Dr D E Reeder describe diphtheria cases in the Canal Zone where this disease is endemic, though it is suggested that it is spread by visitors returning from the Umted States

Di Deeks and Di Connoi describe cases of Pellagra and the former believes pellagra to be due to a "Carbohydiate auto-intoxication, not alone due to sugar, but "to all starchy foods" Di Connoi writes of "atypical forms of plague"

Dr Clark and Dr Darling have a valuable article on Status Lymphaticus

Dr Henry Weinstein describes cases of Ainhum occurring in one family, in an African with a European name and in his family The article gives a good account of the disease, and the cases reported are well illustrated We quote the following remarks on this tropical disease, which has been very little written about since the late Di A Crombie discussed its causation in these columns many years ago

F C Wellman reports a case of amhum and summarizes the various theories advanced hitherto

Due to injury, foreign bodies, etc

(Manson, Eyles)

Self mutilation, ınstru ments, etc

Congenital spontaneous amputation (Proust) A form of mutilating

A form of tropho neurosis (Wucherer, Scheube, Darling)
A form of localized
Scleroderma (Da Silva Lima )

In addition to the above, Wellman suggests that the chigger (Sarcopsylla penetrans) may be a causative factor in some of the cases

It is quite reasonable for purposes of discussion to combine 1 and 2 as belonging to the same category, namely, external influences The cause of ainhum has

<sup>\*</sup> I C C Press, Mount Hope, Canal Zone, Panama

been ascribed to injury by foreign bodies coming in contact with the most dependent part of the foot, the little toe It is claimed that barefootedness of the class of people affected is a very important factor authors who have reported cases in the literature, have ruled out absolutely external injury If barefootedness were a cause, the natives of many countries should be affected, whereas most of the cases reported were in negroes living in cities and wearing shoes Lima has not seen the disease in the barefooted Brazilians or among the creoles Why should the should the disease attack males almost exclusively and shun the barefooted women? How is the hereditary factor to be ruled out? Although the natives of Africa, India, Polynesia, and other parts of the globe inflict upon themselves many injuries by wearing ornaments upon exposed parts of the body such as nose, lips, toes, etc. yet ainhum could hardly be ascribed as due to them

Proust contends that ainhum may be due to congenital malforn ations He claims that as a result of some interference in the development of the fætus some parts may become arrested, causing amputation of fingers and toes, and that the umbilical cord or fibrous projections may ensuate these parts causing airested development, leading later on to spontaneous

amputation

Zambaco Pasha is the most enthusiastic supporter of the theory that ainhum is a form of mutilating anesthetic He studied his cases in Syria and especially at Beirut where leprosy is very common Many diseases of obscure nervous origin such as syringomyelia, morphea, scleroderma diffusum and ainhum are attributed by him to lepious manifestations Dr Collas who observed ainhum among Hindus is quoted as holding views similar to those of Zambaco Pasha

It is to be noted that all of his cases were Caucasians of all ages and both seves. The lesions are described as occurring alike in hands and feet, fingers and toes, with irregular distribution The clinical symptoms are those of anesthetic leprosy with all the nervous symptomsanesthesia, analgesia, electrical and thermal distinbances, together with muscular atrophy There were also observed perforating ulcer, atrophy of the nails, and Zambaco Pasha also has pigmentation of the skin leanings toward the hereditary tendencies of leprosy and considers the pathological findings in spontaneous mutilating leprosy and ainhum as similar

De Brun takes issue with Zambaco Pasha observed his cases at Beirut. In more than 900 cases observed by him not one was seen in which the fifth toe was exclusively affected Although he found a constrict ing band in some of the fingers and toes it was rather

uregular, not cucular as in ainhum

Amhum rarely begins before the period of adolescence, anesthetic mutilating leprosy may occur at any age The racial factor is distinct in ainhuir but not in leprosy Although very seldom toes other than the fifth may be involved by the often symmetrical ainhum process, in leprosy, fingers, toes, and other parts are affected (Polymorphism) Ulcers, fissures suppuration, and other inflammatory conditions are seldom noticed in ainbum, but are very common in mutilating anesthetic leprosy

Dr S T Darling has a very valuable article on amœbæ and entamæbæ (we are glad to see the Canal Zone does not patronise the usual 'American" spelling) and he points out the need of using an expert to tell the difference between entamæbæ and the free living forms -

"There are several kinds of amobe which trouble the doctor in the tropics, and they are divided into groups, depending on whether they are parasitic in the intestinal Those developing in the bowel are called tract or not entamœbæ, while those that merely pass through in an encysted state with the food, and which do not undergo any development, except in the outside world, are called amœbæ

The common entamebre are E histolytica, E tetragina, and E coli \*

The parasitic forms are subdivided further into the parasitic but nonputhogenic E coli, and into the pathogenic E histolytica and E tetragena While E coli is not regarded as an organism that invades tissues it is not unlikely that if a break in the mucosa or bowel wall should occur. E cole might regetate in the peri toneal exudate for instance Recently while taking temperatures by rectum of a monkey that had been moculated from a case of measles, one of the thermo meters was broken and penetrated the peritoneum through the rectum Peritonitis ensued and at autopsy six days later, a yellow to pical entamorbic inflammatory process was seen extending over the peritoneal surface of the large bowel, in the pelvis, and about the cocum In the exudate, were many entamobic

The specific identification of entamobic is of the greatest importance to physicians and sanitarians the former, for the reason that some of them believe that the pathogenic type recognized as E histolytica is amon able to specific medicaments while the type recognized as E tetragena is not so amenable to specific treatment the surgeon, for the identification of pathogenic enta mobo in certain cases may determine his opinion as to the advisability of an exploratory operation for entamobic liver abscess, or performing a cocostomy

The subject is of importance to sanitarians on account of its relation to 'carriers,' and to the sanitary measures directed specifically against the mode of transmission?

"The cultivable species of the genus amoebe are not parasitic in the intestinal tract of man When obtained in cultures from the intestine they probably are derived from cysts of amoche that have been ingested with water or food and have passed unchanged through the intestinal tract

The entancebre parasitic in the intestinal tract of an belong to a distinct genus. They are strictly man belong to a distinct genus. They are strictly obligatory parasites and are incapable of multiplication outside of the body of their host. They cannot be cultivated on Musgiave and Clegg's medium."

"Influenced by the cultural work of Musgrave, Clegg, and Walker, the doctrine of symbiosis as enun ciated by Musgrave was considered essential to an understanding of the bionomics of entimede. This understanding of the bionomics of entimede doctrine usually has a stricter application than that made by Musgiave in his paper on bacterial symbiosis, published in the Philippine Journal of Science, 1909, in which he stated that Symbiosis may be defined as representing all phases of association between living organisms Beginning with commensalism on the one hand, and including true parasitism on the other, in which either component is influenced in nutrition, metabolism, production, or in some other manner by

"In the work of the 'culturalists' it necessary to seed the nutritive plates with bacteria for the amobie to live upon In other words, the amobit could not find ready made or in any shape, nutritive substances in the media which on the other hand were amply nutritive for bacteria Recent researches have indicated very positively that the amorbor studied so faithfully by Musgrave and Clegg were not parasitic entameber, but were free living specimens of amaber

It is possible and indeed highly probable, that inferences made from a study of cultivation experiments with free-living amæbæ, whose normal habitat is the sunlit soil or stagnant water and whose only source of food is an, soil, and water bacteria, cannot be applied by way of analogy to an obligate parasite such as a pathogenic entamorba"

<sup>\*</sup>Note—Recent statements by Hartmann and Doffein would seem to indicate a growing belief in the minds of protozoologists who have worked in this field, that Schaudinn's descriptions of what he called E histolytica were based on degeneration forms of the entamebre now known as E tetragena In a recent fatal case of entamebre dysentery, I found in some preparations, entamebre with histolytica, nipponica, and tetragena features side by side

"I wish to call attention to the very important differences in the pictures obtained by staining with hema torylin and Romonously Hematoxylin stains the refractile granules which are so evident in the nucleus in the fiesh specimen, and these granules are called chromatin. They are condensed in the centriole, haryosome ring or karyosome substance, and in the peripheral nuclear ring. In Romonowsky preparations, it seems to have been customary to call certain structures within the nucleus and staining a bright purple, chio matin, but by carefully differentiating, it will be seen that the purple substance has quite a different distribution within the nucleus, from that substance which stains with hematoxylin and is also known as chromatin It will be seen too that the parts of the nucleus which stain well with hematoxylin have taken a blue coloration in the Romonowsky preparation, and that the structure or substance between the centrole and the nuclear membrane, known as the karyosome ring, stains rather faintly with hematoxylin, but intensely purple in the polychrome blue cosin preparations. This point should not be lost sight of, for it has frequently been the occasion of introducing errors into the illustrations and descriptions of protozoa in literature, for example, Dr Claig's colored drawings of E histolytica have been reproduced by Prof Calkins in black and white values, thus giving an absolutely erroneous impression of the structure of the nucleus. When we consider that hematorylin, in black and white is the universal language, so to speak, used by parasitologists, then with regard to the points discussed above, the importance of always explaining whether by chromatin is meant true chromatin or purple chromatin is evident"

"In closing, I should like to emphasize one of two points First, with regard to the criots which have crept into the literature on the subject of entameds by the use of polychiome cosin stains, and the attempts to describe life cycles and appearances of various structures with these stains. Careful observation of fresh specimens, compared with wet fixed hematoxylin preparations, reveals the fact that hematoxylin stains the refractile substance known as chromatin. When these two preparations are compared with those stained by Romonowsky, it is seen that the nucleus reacts with the stain, so that what is stained intensely by hematoxylin is stained feebly or not at all with blue in the polychrome cosin preparations, again, the nuclear portions staining purple in polychrome cosin preparations and called chromatin by various writers are entirely different from humatoxylin chromatin

Di James has also a valuable article on the differentiation of these amobie from which we must make a few extracts, as in these days of emetin treatment the diagnosis of dysentery as bacillary or as amobic is all-important (the italics are our own)—

"When I came to the Isthmus in 1906, among the many other objects in stool examinations that were almost daily demonstrated to my untutored gaze, were small bits of protoplasm that possessed more or less motility. Among these, I was told were amoba coli, and these were certain manifestations of dysentery, past, present or to come, whether or not the patient symptoms of the disease. There were also in the specimens other objects which resembled these amorbide colosely, when the latter were at rest, that the identification might have been said to depend on motility. If the suspected organism threw out pseudopodra, or "kicked," as this manifestation of activity of active treatment and forthwith thymologianine irrigations, or both, were given, in most instances to the I was very much interested in these amorba, and read

about them in what literature I could get, but I do not recall that I saw anywhere, and certainly not in the textbooks of that date, any distinction of species. All the writers whom I consulted, termed the organisms found associated with dysentery, amabae coli. At that time, the water supply was not in its present state of efficiency, and amabae were very frequently found, particularly in that class of patients known as "Zone charity," and also among the human derelicts known as "beach combers," who were stranded in Colon

Shortly after I had arrived, and had become as firmly convinced as anyone else here as to association of amuba coli with dysentery, those who had become proficient in the identification of the parasite, claimed that non-motile anice we could also be distinguished with certainty As a corollary the number of cases of amalic dysentery, or rather of amichic infection diagnosed as aniable dysentery, increased, in one instance, 300 per cent in two months. The number of quinine and thymol irrigations rose in proportion, as did the sufferings of the patients, many of whom, if they did not have colitis prior to the treatment, certainly developed it later. The charts of that day contained among the stool findings a very high per cent of amichic coli. It is fortunate that most of the physicians did not make a diagnosis unless the amichi "kicked," else the hospital would have been too small for the treatment of other diseases. I know now that many of the non-motile amichic which were responsible for a diagnosis and treatment of pathogenic injection were cysts of Ent coli, and probably, in some cases, cysts of Ent tetragena also

I do not know when the first attempts at a differential tion of species were made here. Speaking now only for myself, the first time I heard of histolytica was when I was on leave in Baltimore in 1908. I was asked there what method we used to distinguish histolytical from cold. If I remember correctly, I maintained a discreet attitude, and tried to give the impression that we found the distinction very difficult. And here I must confess that although I must have seen very many specimens of histolytica and cold between 1906 and 1908, if any differential appearance that they presented struck my attention, I do not remember what it was

Since 1908, we have, I believe, tried faithfully to differentiate the two species, and most of us if not all, recognize the histolytica as a definite agent in the production of dysentery, and the coli as a harmless commensal. If any of you disagree with this statement, I shall correct it with pleasure, but will not discuss it at this time, as a full account of arguments on this subject can be found in the recent literature.

However, our troubles in differentiation, I regret to say, are by no means over In 1908 Viereck, and independ entry Hartmann and Prowazek, described entamedae which Viereck called Entameda tetragena This organism resembles in appearance, as regards motility and the characteristics of the ectoplasm and endoplasm, the histolytica, but follows coli more closely in its life cycle. At present there is as much dispute as to whether tetragena and histolytica are separate species, or are different stages of the same organism, as there was no regard to coli and histolytica prior to Schaudinn's work. Tetragena and histolytica are each pathogenic for man, but in my limited experience with the former it

I have given this history, incomplete as it is, of amichic dysentery in the Canal Zone and elsewhere, to make as plain as I can the importance of identifying the entanceber in the same manner and under the same conditions that the malarial parasites are identified Other species of entanceber are said to exist in man, and dysentery is attributed to them. If their identification should hold, probably some will be found here also However this may be, it is certain that in the past, as the subject will emphasize again, we have treated many dysentery. At present it concerns us not to treat simple or complicated infections with this organism for

true amæbie dysentery, unless pathogenic entamæbie are associated also Ent coli is found, in health, in diarrhoa, in many diseases not complicated in any way with dysenteric symptoms, and very possibly may be found also in dysenteries that are due to agents, such as the Shiga bacillus, against which it is a waste of time to try bismuth, ipecac, or even quinine and thymol irrigations On the other hand, very serious results would follow the rdertification of coli for histolytica It is true that the persistence of dysentery in such an instance would reveal the true cause of trouble, but such a method of diagnosis, fraught as it is with every possibility of serious complication, cannot be too heartily condemned Also, histolytica and coli are not infrequently present in the intervals between exacerbations of dysentery, and to take the former for cole with failure to initiate prompt and active treatment, would be a mistake in diagnosis that might seriously impair the patient's health "

# Medical Society.

MEETING OF THE ASSAM BRANCH. BRITISH MEDICAL ASSOCIATION. HELD+ IN DIBRUGARH, 25rh JANUARY 1913

### Present

DR WITHAM, President, Major Leventon, IMS, Barker, IMS, Doctors Russell, Hunt McCombie, Hait. Roberts, Valentine, Smythe, Crole and Macnamara, Hon Sec

Doctors Hallwright, Flory and Fry regretted they could not attend

- Dr Witham welcomed the members and trusted that those who were not members of the association would become members before next meeting
  - The minutes of the last meeting were read
- It was arranged that the next meeting be held in Joiehat in April
- The following gentlemen were elected as officers for 1913 -

Dr Witham, President

### Committee

Di Winchestei foi Sibsagai

Di Valentine for Tezpur and Bisnath Major Leventon, IMS, for Dibrugarh Dr McCombie for Panitola and upwards

Dr McCombie showed an interesting case, in a young man, which showed all the symptoms of disseminated sclerosis. The nervous symptoms

Considering the were exceedingly well marked great rarrity of these cases in Assam, the meeting was very grateful to Dr McCombie for bringing

the patient

Valentine read his experience with salvaisan (69 cases, including two of neo-salvar-(Published above p 299) The President Dr Hart tried salvarsan in invited discussion two cases (Dr Isaacs' cream preparation) first case was a woman with serpiginous ulcera-

tions on which HG & KI, had no effect gramme of this preparation cured his case in He gave a second injection after 11 days, practically establishing a cure He noticed that the hæmoglobin increased from 40% to 50% in a few days and went on increasing till 70% and at the end of 3 months was quite The second case was an elderly man cured with chionic rupia, refractory to H(1 & KI, marked improvement took place Two injections were given, then the man left hospital then the man relapsed within a period of 3 Dr McCombie asked regarding relapses The President said he had used the cream preparations, but gave six weekly injections had found excellent results follow. He had found that pain was not so marked with the oily pieparations He found that subsequent HG treatment was desirable and arranged that his patients should be placed in a gang to receive He mentioned a case, where he had given a watery solution injected and after 10 The ultimate results days an only injection of this case was extremely good He inferred that salvaisan caused a disappearance of infection which would have taken a couple of years with Regarding the treatment of anemia with salvarsan, he had commenced treating cases, but had formed no opinion. Di Hait asked about Di Valentine replied that any ınduıatıon cases that he had injected or infused twice had not relapsed up to the present He did not think that the bore of the needle caused the blocking so much as the unevenness of the solution He agreed that recently distilled or emulsion water was desirable for the solution

Dr Duncan Hart read notes on four cases of diphthena which are extremely raise on tea Major Leventon said that though these cases were rare, they were not unknown He remembered two cases amongst Europeans where the throat symptoms were quite slight, but paralysis of the palate was quite a marked He remarked on only one case showing paralysis. The President said that he had He mentioned that it found the disease rare was said at home that a wet summer showed comparatively few cases of diphthena and it was possible that our very wet chimate here gave us comparative immunity or rather freedom from Dr Hart replied diphtheria

Di Valentine read a paper on cholera and its treatment by intravenous transfusion of saline

Dr McCombie asked if these cases were epidemic or sporadic and mentioned that in many cases of choleraic diarrhæa malignant tertian

parasites were found.

The President remarked on 'Laopani" pro-The diagnosis of ducing choleraic diarrhea such cases should be established microscopically Major Leventon complimented Dr Valentine on

<sup>\*</sup> Received June 1913 Ep-I M G

his paper and drew attention to the fact that the earlier the transfusion is made, the better results He mentioned three cases where were noticed The people would not transfusion was refused allow any cutting whatsoever He then gave rectal transfusion, laising the pelvis high, and adding The solution was 2 adrenalin to the solution drachms of salt to the pint and the three cases recovered Unnation was established 18-36 hours The three cases were children, aged 6, 8 and 12 Each child had 4 or 5 mjecand were brothers tions of 2 pints and care was taken that the fluid should not be expelled quickly

Major Leventon showed some excellent skiagiams of fractures, etc

# Connexpondence

### A REMEDY FOR PRICKLY HEAT

To the Editor of "THE INDIAN MEDICAL GAZETTF"

SIR,—I was interested in Di Hankin's remedy for prickly heat given in the Gyzette of June 1913. Shortly after my first arrival in India (thuteen years ago), from experiments upon myself, I came to the conclusion that prickly heat was due to the long continued action on the skin of the acid part

of sweat

I agree with Di Hankin in the success of his remedy, but I differ in the rationale of the treatment. In my opinion the acid is not an adjuvant of the disinfectant in the sense of increasing its penetrative power—but the real effective in gredient of the remedy. The disinfectant is quite un necessary in uncomplicated cases of prickly heat. The disinfectant which in my hands gives most relief is carbolic.

necessary in uncomplicated cases of prickly heat The disinfectant which in my hands gives most relief is carbolic acid, the an esthetic action of which is very useful. It is necessary to follow out carefully. Di Hankin's directions regarding application. If the remedy is applied to the affected area while the sweat glands are active, the disease is merely aggravated, the remedy should be applied "under a punkah" as Di Hankin states, or as I should put it—while the sweat glands are at rest.

COMILLA, 19th July 1913 }

Yours, etc , A C MACGILCHRIST. Major, IMS

### A CASE OF TORSION OF THE SPERMATIC CORD To the Editor of "THF INDIAN MEDICAL GAZETTE"

Sin,—A Hindu boy of about fourteen was brought to the hospital one morning complaining of pain in his abdomen which had come on suddenly earlier in the morning

On examination he described the pain as being situated in the right side and extending down into the gioin. The legs were drawn up, the abdomen fairly rigid and evidently

on pripation the abdomen was found to be normal and the sert of the mischief was quickly located to the right side of the serotum

The right testicle could be felt enlarged and there was a certain amount of fluid present. Just above the testicle a peculial twisted mass, evidently connected with the cond, could be felt which was unlike anything I had ever felt before. A hermal could be at once excluded and the cord above the mass felt quite normal.

On opening the scrotum it was found that about two inches of the cord immediately above the testicle was spirally twisted on itself and kinked. There were in all five spiral twists in the direction of the septum, the part of the cord involved and testicle being much congested. It was necessary to pull the testicle completely out of the scrotum. It was subsequently accordingly that it was subsequently accordingly that it was subsequently accordingly that it is a second to the scrotum.

It was subsequently ascertained that the boy had been trying how many times he could twist his testicle round and could not untwist it again

J R J TYRRELL, WB, CAPT, I WE, BUNDELKHAND, 1 10th Into 1913 Agency Surgeon

### PYOSALPINX

To the Editor of "THE INDIAN MEDICAL GAZETIE"

Sir,—In the May number of the Indian Medical Gazelle Major Barry, IMS, published a paper on Pyosalpina in which he give the results of operation upon 100 cases. I can supplement this by a short note upon 23 laparotomies for the same condition performed by me in the Rangoon General Hospital when I had charge of Major Barry's wards during his absence on leave during his absence on leave

In my series of cases both tubes were removed 19 times—one tube 4 times, Hysterectomy was performed three times, and in one of these latter cases the appendix was removed as it was adherent in the Pelvis All the patients made good 1 ecover 1es

The uticle referred to dealt very fully with the subject and I do not propose to recapitulate, rather do I wish to draw attention briefly to a few points. I note that no mention is made of the use of the aspirator, in those cases in which the Pelvis is completely and tightly blocked up aspiration of the pus relieves the tension and enables the operator to find those natural lines of cleavage between the adhesions which his fingers find the more readily as his experience which his fingers find the more leadily as his experience increases

In most cases even when both tubes have been removed I think it is possible to fix the uterus satisfactorily, and this fixation is an essential part of the operation. In my opinion the uterus should be removed for two chief reasons tristly, when by so doing the operation is materially expedited and facilitated, and secondly, when the uterus is either diseased or prolapsed. I found it necessary to perform Hysterectomy on three occasions, once because of a large fibroid, once because the uterus was completely prolapsed, and once because in no other way could I deal with the tubes. In this last case I found it easier to work from the centre to the periphery, the risk of injury to the uneter in dealing with tough lateral adhesions to the pelvic wall is considerable and can be avoided to a large extent by this procedure. In most cases even when both tubes have been removed procedure

The method of drainage and after treatment are important In difficult cases where numerous adhesions have been separated complete hemostasis is difficult to secure

been separated complete hæmostasis is difficult to secure and a certain amount of oozing is inevitable. In these cases I think that divinage through the vaging is more efficient than through the abdominal wound. All cases of recent puer peral infection should be diamed for 24 hours.

The Fowler position and Salmes should be part of the routine after treatment. Personally, I gave morphia to all my cases, the advantages of a good night's sleep seem to outweigh all other consideration. The assiduous care and attention given to these patients by the European sister in charge has undoubtedly been no small factor in their restoration to health. restoration to health

I have had the advantage of seeing and assisting in the excellent Gynrocological practice which Major Barry has built up, otherwise I should have treated by preliminary drainings some of the cases of Pyosalpina in which the tubes were successfully removed. My recollection of similar cases in England, while I was a Resident Obstetrical Officer, is that they came to hospital much caller and that adhesions were not so common or so formidable. These are factors to be taken into consideration in any comparison of results.

S T CRUMP.

CAPT, I US,

June 1913

Civil Surgeon, Myaungmya, Burma

### EMETINE AND LIVER ABSCESS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

Sir,—It is well known that Emetine is specific not only in amobic dysentery but also in congestion of liver, threatening to suppurate It is not known however that it is efficated to the congestion because the state of the congestion and the state of the congestion and the state of the congestion and the state of the congestion and the state of the congestion and the state of the congestion and the state of the congestion and the state of the congestion and the state of the congestion and the state of the congestion and the state of the congestion and the state of the congestion of cious in liver abscess where suppuration has already taken place

Among medical men there is an unanimous opinion that Among medical men there is an unanimous opinion that when once suppuration has been established no drug will be of any use except knife. The study of the pathology of liver abscess shows that there is a marked difference bet ween the suppuration that takes place in the liver as a result of amæbic dysentery, and the suppuration which occurs elsewhere as a result of infection with ordinary pyogenic cocci. In the former the pus, which is like crushed strawberry pulp, consists of nothing but the debris of degenerated liver cells and is sterile, whereas in the latter the pus consists of pus corpuscles and liquor puris with pyogenic cocci and their products, the absorption of which experience shows produces septicæmia and pyæmia

On the other hand, the absorption of the former fluid need not produce any serious effect as the fluid is sterile

I had an opportunity of treating a case of tropical liver

I had an opportunity of treating a case of tropical liver abscess due to amobic dysentery where such absorption did take place without any haim

A patient named Vazeer Bi, aged 40, had a severe attack of dysentery about an year ago, which was neglected and improperly treated and which continued off and on in the form of diarrhea up to the time I saw her. There is a clear history of excessive drink. About four months are laborated as the contraction of excessive drink. form of diarrhea up to the time I saw her There is a clear history of excessive drink. About four months ago, she started getting high fever with rigors and later on the fever abated a bit and was unattended with rigors. On the 20th February 1913 she was seen and treated by Dr. A., and 30 ounces of pus mixed with blood was aspirated. On 26th February 1913, 29 ounces of pus, and on 1st March 1913, 21 ounces of pus were removed by Dr. A. After one or two more aspirations, it was decided to open up the abscess, as the quantity of pus was not diminishing and the patient was getting weaker. The patient was unwilling to be operated and I was consulted on 13th March 1913. I found her extremely weak, an emic and emacrated, with enlargement of and I was consuited on 13th March 1913. I found het extiemely weak, an emic and emacrited, with enlargement of livet extending almost to the umbilious in the median line and about 6 inches below the right costal arch in the right mammary line. The swelling due to enlargement of livet was quite distinct and visible. She had severe throbbing pain in the region of the liver and was unable to lie on that with a few weeks to be seen that the second to have too learn the line of the liver and was unable to lie on that side She used to have five I quid yellow motions daily with out any griping pain. Her fever ranged between 99 8° in the morning to 103° in the evening. It was distinctly of hectic type and she had hectic flush on the malar bones, she was not even able to sit or move in bed She had nausea and was unable to take her food

I prescribed & grain of Emetine dissolved in distilled water to be taken thrice a day Within a week the tempera ture came to normal and remained normal Diarrhoea stopped Pain in the hepatic region diminished. The swelling gradually began to diminish, and in a month's time the ling gradually began to diminish, and in a month's time the liver returned to its normal dimension. Pain completely ceased. She was able to walk and had an appetite. Anomia disappeared and she began to gain weight. She had altoge ther 21 grs. of Emetine. During the treatment I noticed two things. First, she had wdema of face and feet, most probably due to excessive work thrown upon the kidneys as a court of absorption of pure and which was released by Druietin and Digitalis Second, anamia increased most probably due to Hamolytic effect of the pus absorbed This was treated by Hamitogen My object of publishing the case is, first, to impress upon the medical men that Eme tine is efficacious even when supputation has already taken place, and second, that it is equally efficacious when given by

Yours, etc. S MALLANNAH MD, DPH, Bacter tologist to H H The Nizam's Govt Hyder abad

### A CASE OF INFANTILE CONVULSIONS DUE\_TO "ASCARIDES"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIL,-On the 8th of August 1912, I was called to see a Sil,—On the 8th of August 1912, I was called to see a Mahomiliedan gill, Amina by name, aged I years, who had fever, the girl was unconscious and the body temperature under the axilla was 104 6° F. A dose of aspirine (gr. in) and cold spongings were prescribed to bring the temperature down and it fell to 101 3° F. within a short time, when quidine in the form of mixture was tried by the mouth. The gill rejected this, and a dose of equinine (gill) was administered. Her relatives did not again call me that day, but asked their family physician (a private practitioner) to treat the case. tieat the case

August 9th, 1912 Next day at about 10 o'clock I was again called to see the child This time I found her much exhausted, severe convulsions and twitchings of the extremities were severe convulsions and twitchings of the extremities were present, while the tongue was frequently protruding from the mouth. The temperature ran high up to 1042° F, and the extremities were cold. I at once ordered cold douches on the head (cold water mixed with vinegar) and injected hypoder mixally quinine, acid hydrochloride gr. v. and morphine hydrochloride gr. The twitchings lessened in severity until at length they ceased altogether. A soap water enema freed her bowels and I prescribed a mixture of—

> Quinine hydrochloride Acid hydrobrom oil Spt chloroform Glycerine Syı Rosæ Aqua Pura

At night, the gul was conscious and free from fever—She vomited once some bilious substance and the convulsions were considered although to a milder degree—This time, the renewed, although to a milder degree. This time, the twitchings were of a jerking nature and occurred at irregular intervals, affecting chiefly the wrists, hands and the lower extremities. There was also some mild delirium.

extremities There was also some mild delirium. As advised, cold douches on the head were continued and the following mixture was given.—Ammon bromide, Ti Hyoseyamus, Tr Belladonna, Syr Rose, spt. chl., Aqua, when the twitching gradually stopped. August 10th, 1912. On the 10th morning, the temperature was 98.8° F, but grinding of the teeth and some restlessness were observed. The tongue was still coming out and I give calomel and santonine, of each 2 grains, and tasteless castor of 31. After some time the girl complained of intense pain in her abdomen, and within a short time bassed out (12) twelve in her abdomen, and within a short time passed out (12) twelve living round worms, each about 3½" long, at about 12 o clock By the whole day, the patient was conscious and at lest The bromide and the quinne mixtures were continued August 11th, 1912. On the 4th day of the disease there was nothing special excepting that the temperature foll down

below normal in the morning but again became normal in the

evening

August 12th, 1912 On the 5th day of the disease, another dose of suntonine gr 1, calomel gr 3, and castor oil 311 effected the expulsion of (15) lifteen living round worms, each virying from 3"-4" in length

After the escape of these 27 (124 15) round worms the child had no more convulsions and the temperature did no lorger Quinine hydrochloride was continued for 6 days more,

and the patient from this time quickly iccovered

Yours, etc., B C SEN GUPTA. Sub Assistant Surgeon

JORHAT, ASSAM

### THERAPEUTIC AND LITERARY NOTES

Most Civil Surgeons in India are well acquainted with the excellent instruments made by the Holsonn Surcions Instrument Co A new catalogue just come to hand gives Instrument Co A new chalogue just come to hand gives descriptions of several new instruments, e.g., O'Malley's Tonsillectome, Gag, and Adonaid Curette, the supply of throat instruments is large and varied, and we notice Studer's tonsillotome, Donelau's tonsillotome, Jansen's hammer is very useful, and the forehead electric lamp should be very convenient. There is an interesting list of instruments used by Sii Arbuthnot Lane. The tuberculin Syringe deserves attention and Major Houghton's double bougie is worthy of notice. We recommend Surgeons to get this catalogue.

PRACTITIONERS of medicine will be interested to learn that Di Leon Blane and Di H de Meire have translated into English Di Albeit Robin's "Treatment of Tuberculosis" The work will be published by Messrs J & A Churchill, 7, Great Marlborough Street, W

Great Marlborough Street, W

The same publishers have nearly ready an English translation of the Italian work, "A Treatise on General and Industrial Organic Chemistry" by Di Ettore Molinari The work of translation has been carried out by Mi T H Pope, of the University of Brimingham The text contains 500 illustrations. They will also publish a new and revised edition (6th) of "Surgical Pathology" by Sii Anthony A Bowlby, C M G, and Dr F W Andrewes.

Messis E T Pearson & Co, Ld, 49, Watling Street, E C, London, send as literature of the VASOLEMS Vasogen is a golden brown mineral oil, which emulsifies on mixing with water or body fluids. It is said to quickly penetrate the deeper layers of the skin and is consequently an excellent drug vehicle and solvent Various vasogen compounds are obtainable, e.g., rodine vasogen, creasote vasogen, mercury

obtainable, eg, rodine vasogen, cleasote vasogen, mercury vasogen, & e. & Some vasogens are liquid and some in the form of ointments, eg, Mercury Vasogen for munction

### CELLOPH INE

This substance has been introduced by O Matthes, of Dussellorf am Rhein. It is a soft strong transparent film of pure cellulose non fibrous, tasteless, and odourless Insoluble and unaffected by water even when boiling, or by alcohol, or by chemicals or reagents in ordinary use. It contains neither oil not India subber and is grease proof. It is proposed for use as an antisoptic bandage for packing and for operating gloves. It looks and feels exactly like the thin subber used for operating gloves, etc.

# Sprvice Motes.

The Annual Indian Medical Service Dinner was held at the Hotel Cecil, London, on Tuesday, 10th June The Hon'ble Sil Charles Pardey Lukis, KCSI, the Director General, was in the chair The guests were the most Honourable the Maiquis of Crewe, Secretary of State for India, Sil Thomas Holderness, KCSI, Permanent Under Secretary of State for India, Sil Francis Champneys, Bart, President of the Royal Society of Medicine, Sir William Watson Cheyne, Bart, CB President of the Medical Society of London, and the Editors of the Lancet and Butish Medical Journal, General Sil Beauchamp Duff, GCB, Sil Thomas Barlow, Bart, KCVO, President of the Royal College of Physicians, Sil Richman John Godlee, Bart, President of the Royal College of Surgeons, and Mr Austin Low, were also invited, but unable to attend

but unable to attend
Eighty five members of the service, on the active of retired
list, were present at the dinner the githering being the
largest yet held. The senior officer present was Surgeon
Major Robinson Boustead, a veter in whose first commission
dates back to 23rd July of 1858, fifty five years ago. He served
with the Turkish contingent in the Crimer in 1855 56, and
received the fifth class of the Mediadie, in the Mutiny, in the
Central India campaign, in the second Chinese War in 1860,
in the actions of Hashin, Tofiek and Tamai
No other officer attended whose services began under the
East India Company. The next senior were Surgeon
Generals James Cleghorn, CSI, and Sir Lionel Spencer,
In CB, and Colonel A. Porter, all of whom entered on 1st
April 1865, in the first batch commissioned after the service
had been closed for five years

At the I M.S. dinner held in Edinburgh ten days earlier,

At the I M S dinner held in Edinburgh ten days earlier, on 30th May, the chan was taken by Surgeon General Sir Alexander Christison, But whose first commission was dated 20th October 1851, nearly seven years before that of Surgeon Major Boustead. Surgeon General Hay was present

at both dinners

After dinner the Chairman proposed the healths of the King and the Royal Family, and then that of the Marquis of Crewe, and in a short speech pointed out that the conditions of service offered were never better than at present, mentioning the settlement of the "fee question," the grant of annually graduated pensions, and other recent improvements. He also stated that the quality of the latest recinits, as shown by their degrees and diplomas, fully maintained as high a standard as ever. The Marquis of Crewe, in returning thanks, praised the medical profession in general and the 1 M S in particular Later on, Surgeon General Cleghoin proposed the health of Lieutenant Colonel Freyer, who has managed the annual dinners for the last fifteen years, and Colonel Freyer, in responding, spoke of the raity with which honours and rewards were given for purely professional ment

The following officers were present at the dinner in

Surgeon Generals—Sir R H Chules Gevo, J Cleghorn, Car, J P Gream, G Hay, Sir L D Spencer,

Cleghorn, Cai, J. P. Gienn, G. Hay, Sir L. D. Spencer, k. C. B.

Colonels—Sir A. M. Brancoot, k. C. E. C. W. Cair Calthrop, G. W. P. Dennys, D. ffrench Mullen, B. B. Grayfoot, G. F. 1. Harris, C. S. P. Hehir, D. E. Hughes, C. C. Little, M. D. Morrarty, R. D. Mullay, A. Porter, P. A. Weir

Lieutenant Colonels—W. G. P. Alpin, J. Anderson, R. J. Baker, R. H. Castor, W. H. Cadge, J. T. Calvert, D. G. Crawford P. J. Freyer, C. R. M. Green, H. Greany, D. F. Reegan, M. A. Ker, D. P. Macdonald, W. Molesworth, J. Moothead, T. R. Mullioney, W. H. Ogillie, R. Prasad, W. G. Pridmore, J. J. Pratt, W. H. B. H. G. L. Wortabet.

Vayors—W. R. Battle, R. Boustead, P. F. Chapman, G. B. Christophers, De. V. Condon, A. T. Gage, A. A. Son, J. H. Hugo, D. S. O., W. Lethbridge, E. A. C. Matthews, Peuce, E. L. Perry, Sir Ronald Ross, R. C. B., F. R. S., S. A. Capitans—C. H. Barber, F. P. Connon, W. T. Finlayson, H. H. G. Knapp, J. L. Lunham, G. E. M. Milcolmson, E. S. Williams

Supercon Graphan, S. C. G. Carlotte, J. Taylor, W. P.

SUPERON GENERAL SIR CHARLES PARDEL LUKIS, the Director General, has been appointed Honorary Surgeon to the King from 20th February 1913, the Surgeon General George Bidge, deceased, and Surgeon General A. W. Croft

has received the same honour from 2nd March 1913, with Surgoon General Su Colvin Colvin Smith, K C B, deceased These are the first vacancies, and the first appointments, under the recent orders of 8th August 1911, by which appointments to the King's Honorary staff will in future be filled up from the active list. Two Bengal officers take the place of two men of the Madras Service. Bengal has now got much more than its fair numerical proportion of these appointments, nine out of twelve, Madras has now only one, and Rombay two. The I M S officers holding these posts are as follows, all but the two last being on the retired list.

### Honorary Surgeons

Surgeon General I Cleghorn (B) 5th October 1898 Surgeon Major General P Turnbull (Bo), 20th September 1902

Honorary Colonel Sir W Hooper (B), 5th August 1804 Surgeon General Sir L D Spencer (B), 27th January 1906 Surgeon General Sir C P Lukis (B), 20th February 1913 Surgeon General A M Crofts (B), 2nd March 1913

### Honorary Physicians

Surgeon Major General J Pinkerton (Bo), 22nd March

Surgeon General C E McVittle (M), 23rd March 1898 Surgeon General Sn B Franklin (B), 23rd March 1898 Surgeon Colonel J Richardson, (B), 26th September 1903 Honorary Colonel K McLeod, (B), 2nd May 1906 Honorary Colonel D D Chinnigham (B), 4th December

BRIGADE SURGEON JAMES JOHN DURANT, Bengal Medical Service, retried, died at Crouch Hill, London, on 14th May 1913. He was born on 14th December 1831, and after serving for eight years, 27th April 1850 to 1858, as a Civil Sub Assistant Surgeon (equivalent to the modern Assistant Surgeon), went to England' in 1858, and took the MRCS the same year He entered the IMS as Assistant Surgeon, well to Abgland In 1603, and took the M R C S the same year He entered the I M S as Assistant Surgeon on 10th February 1879, became Surgeon on 10th February 1871, Surgeon Major on 1st July 1873, and retired, with a step of honorary rink, on 1st July 1883. The Army List assigns him no war service

LIEUTFNANT COLONEL ARTHUR THFOPHILUS LODGE PATCH, Madias Medical Service, retired, died at Bangalore on 27th April 1913. He was educated at Aberdeen, where he took the MB and CM in 1880 also the DPH subsequently in 1894, and entered the IMS as Surgeon on 2nd April 1881, becoming Surgeon Major on 2nd April 1893, and Lieutenant Colonel on 2nd April 1901, retiring on 19th June 1901. He served in Burma from 1887 to 1890, in the operations of the third Brigade, in operations round Nyingyan and also with the Myaing column, receiving the medal and clasp

The Council of the Royal College of Surgeons, England, have adopted a resolution congratulating the IMS centenarian, Surgeon Major H B Hinton, on the completion of his hundredth year Di Hinton took the MRCS in 1835, seventy eight years ago

Liputenant Colonel Henri Charles Leffler Armin, Bombay Medical Service, retired on 30th June 1913 He was boin on 2nd January 1863, took the MRCS and LRCP, London, in 1887, and the DPH, of the London College in 1892, and entered the IMS as Surgeon on 31st March 1888, becoming Major on 31st March 1900, and Lieutenant Colonel on 31st March 1908, and being placed on the selected list on 25th April 1911 The Army List assigns him no war service His substantive appointment was that of Deputy Sanitary Commissioner, Guzarat Registration District, but since 8th June 1911 he had been on furlough

As we have already announced, the designation of the Secretary to the D G, I MS, will in future be Deputy Director General, I MS

Lieutenant Colonel Biuce Seton, V H S, I M S, continues in that appointment, while Major J Gould, M B I W S, 19 appointed to be Assistant Director General, I M S (Stores) with effect from 4th April The Secretary to the D G, I M S in the Sanitary Department, will in future be known as the Assistant Director Jeneral I M S (Sanitary)

LIEUTENANT COLONEL KANTA PRASAD, I MS, lettled from the service in June 1913 He has had leave out of India on medical certificate since November 1911 He took the MB & MS, Edinburgh, and also the triple qualification in 1885 He entered the service in March 1888, in the same batch as the late Major D M Mon and Sn James Roberts, CIF He spent most of his service in civil employ in Burma He is an expert linguist and passed examinations in Burmese, Kachin, Maru, Manipuri, Pushtu, Shan, and holds the degree of Henoun in Uldin

THE Commander in Chief in India is pleased to make the following appointment

Major C W F Melville, I MS, is confirmed in his appointment as Deputy Assistant Director of Medical Services (Mobilization), 1st (Peshawai) Division, with effect from 19th December 1912 (Reference India Army Order No 2 of 1913)

The following paragraph is going round the papers—
"The 'Father' of the Army—The distinction of being Father of the British Army is said to belong to Surgeon Major H B Hendon, late of the Indian Medical Service who reached the patriarchal age of 100 on March 7 Born two and a half years before Waterloo, he became assistant surgeon in the Bengal Army in 1839, during the Viceivality of the second Loid Auckland and when General Sir Jasper Nicolls was Commander in Chief in India. He served in the Mahratta war in 1843, which ended in the victories of Mahraippore and Punniar fought on the same day, and during the campaign in 1845 46 in the battles of Sobraon and Aliwal He retried forty five years ago, and has since resided in Australia."

We gave an account of this I M S veteran's service in our columns (I M G, April 1913, p. 165)

columns (I M G, April 1913, p 165)

-British Officers of the Indian Army -The Govern ment of India have been pleased to sanction the adoption by Bittish officers of the Indian Aimy and Indian Medical Service of the stand up collar pattern frock, serge, universal, described in Dress Regulations for the Aimy, 1911, para graph 28, with the following modifications—

(i) It will be of serge of the colour authorised for the

present serge frock in those units wearing other than blue
(11) Coloured collars and cuffs, piping, etc., will be returned in those units and corps for which these distinctions are at present authorised

2 Existing putterns may be retained until worn out when officers should provide themselves with the authorised pattern

THE undermentioned officers have been permitted by the Most Hon'ble the Secretary of State for India to retire from the service, subject to His Majesty's approval, with effect from the 30th June 1913

Colonel Herbert St Clarke Carruthers, Indran Medical

Service Madras

Lieutenant Colonel Henry Robert Woolbert, MB, FRCS,

Indian Medical Service, Bengal Lieutenant Colonel John Bland Jameson, MB, Indian Medical Service, Bombay

LIEUTENANT COLONEL MACKINTOSH ALEXANDER THOMAS COLLIE, MB, Indian Medical Service, Bombay, is permitted to retire from the service, subject to His Majesty's approval, with effect from the 30th June 1913

COLONEL CARRUTHERS was educated at Charing Closs Hospital and took the diploma of L R C P & S, Edinburgh, in 1878 He entered the service on 30th September 1878 and served in the Afghan war of 1879 80 He was for a long time Medical Store keeper at Madras and was appointed I G of Civil Hospitals, Burma, on 30th June 1908, he went on 7 months' leave on 9th November last and completed his tour of 5 years as an Administrative Officer on 29th June 1913 His place in Burma has been taken by Colonel A O Evans, who has been confirmed in this appointment

LIEUTENANT COLONEL HFNRY WOOLBERT, MB, FRCS, IMS, took the MB, London, in 1884, and the English FRCS, he entered the service on 1st October 1885, and has been for long in civil employ under the Foreign Department, he was put on the selected list on 1st April 1910. He went on leave out of India on 29th Maich 1912, he gets one of the compensation pensions of £100 for the current financial year, but would not have completed his 30 years' service till 23rd December 1913 The Army List assigns him no war service

LIEUTENANT COLONEL JOHN BLAND JAMESON, I MS, MB, entered the service on 11th Maich 1890 He served in the NW Frontier Miranzu Expedition of 1891 (medul and clasp), the Mohmand Expedition 1897 98, desputches, medal and clasp, and in the Tirah Expedition of 1897 98, and Bara Valley in December 1897 (clasp) He has been in civil employ, Bombay, for several years An elder brother of his, Surgeon Major Jameson, died in India about 13 years ago

LIEUTENANT COLONEL M A T COLLIF, I MS, was educated at Aberdeen and took the L R C P & S of Edinburgh in 1878 and MB, MS of Aberdeen He entered the service on 31st Murch 1883, and has been chiefly in civil employ in Bombay and was well known as Physician to St George's Hospital in Bombay He completed 30 years' service for pension on 29th June 1913

The following promotions are made, subject to His

Captains to be Majors, I M S

Fiederick William Sumner, MB, F1 CSF,-27th Decem ber 1912
William Duncan Ritchie, M B
John Kenneth Sprot Fleming
Evelyn Charles Hepper George Charles Lovell Kerans Christopher Birdwood McConighy, W.B. John Beresford Christian -27th June 1913

Andrew Maiphy M B
Frederick Troughton Thompson, M B
Lamence Percival Brassey, M B
Colin Forbes Marr, M B Patrick Laurence O'Neill

CAPTAIN F W SUMNER therefore gets accelerated promotion, his first commission dates from 29th January 1901, and in a previous notification Captains G Fowler and S Bose of this batch were gazetted Majors with 6 months' accelera

Major J W Watson, I MS, an Agency Surgeon of the 2nd class, is granted privilege leave for two months and thirty days, with effect from the 23rd May 1913

CAPTAIN T S B WILLIAMS, IMS, an Agency Surgeon of the 2nd class, on return from leave is posted temporarily as Agency Surgeon in the Eastern States of Rajputana, with effect from the 23rd May 1913

THE following promotion is made, subject to His Majesty's approval -

Lieutenant to be Captain, I M S

Cecil George Howlett, M B ,—29th January 1913 Captain Howlett's first commission is dated 29th Junuary 1910, and he has recently been officiating in medical charge of 9th Bhopal Infantry

MAJOR F W SUMNER, I MS, Civil Surgeon, on completion of his training at Kasauli, was posted to Farrukhabad

PROFESSOR W J SIMPSON C M G, left London in June for the East Coast of Africa, where he will conduct an inquiry in regard to plague and samitary matters generally During his absence Colonel W G King, CIE, IMS (retd.), will act for him

CAPTAIN A F BABONAU, I M s., plague medical officer, Jhelum, was granted two months and 6 days' privilege leave from 15th June 1913

CAPTAIN N M WILSON, I MS, made over charge of the duties of the Superintendent of the Dera Gházi Khan District Jail to Senior Assistant Surgeon S Dalip Singh on the fore noon of the 2nd of June 1913

CAPTAIN A C KEATES, IMS, made over charge of the duties of the Superintendent of the Campbellpur District Jail to Assistant Surgeon Feroze uddin on the afternoon of the 31st of May 1913

Major C A Sprawson, MD, IMS, has been appointed Professor of Medicine at King George's Medical College, Lucknow, with effect from 1st July 1913

CAPTAIN J H HORTON, DSO, IMS, joins the Bombay Civil Medical Department

LIEUTFNANT COIONFL E V HUGO, FRCS, IMS, is granted furlough from 1st October 1913, for one year

CAPTAIN H H THORBURN, I MS, an officiating Agency Surgeon of the 2nd class, 19 posted as Agency Surgeon, Meshed, and ex officio Assistant to His Britannic Majesty's Consul General and Agent to the Government of India in Khorasan, with effect from the 1st June 1913

CAPTAIN F E WILSON, IMS, an officiating Agency Surgeon of the 2nd class, is granted privilege leave for three months, combined with furlough for one year and study leave for nine months, with effect from the 6th May 1913, under Articles 233 and 308 (b) of the Civil Service Regulations, and the Regulations prescribed in the Notification by the Government of India in the Army Depart ment, No 867, dated the 6th September, 1912.

No 1075, 1st class Military Sub Assistant Surgeon Zahir no 1016, 1st class ministry Sub Assistant Surgeon Zamud din Khan, Indian Subordinate Medical Service, is appointed to hold charge of the current duties of the office of Agency Surgeon Meshed, in addition to his own duties, with effect from the 6th May 1913, and until further orders

MR E W MARSH, LRCP & S (Edin), DPH (Edin), who was appointed to be a Civil Assistant Surgeon on probation in the Burma Civil Medical Department, Notification No 315, dated the 9th October 1911, is confirmed in that appointment, with effect from the 21st October 1911

The following appointments and postings are ordered in the Civil Medical Department Burma—
Captain E A Walker, I MS, is deputed to Kasruli for training in Clinical Bacteriology and Technique
Captain H W Firebrother, RAMC, is appointed to hold collateral charge of the Civil Singeoncy, Medicila District, during the absence of Captain E A Walker, I MS

CAPTAIN F P Connor, FRCS, I VS, has been granted by His Majesty's Secretary of State for India, study leave from the 1st November 1912 to the 22nd April 1913, less seven day's excessive vacation

His Excellency the Governor of Bombay in Council is pleased to make the following appointments, vice Lieutenant Colonel M A T Collie, M B (Abdn ), C M , I M S , retiring —

Lieutenant Colonel T Jackson, MB, BCh (PUI), IMS, to be Physician, St George's Hospital, Bombay

Major H Bennett, MB, CM, BSc (Edin), FPCS (E), INS, to be Civil Surgeon, Ahmedabad

Major R W Anthony, MB, CM (Edin), FRCS (E), IMS, to be Civil Surgeon, Karachi

MAIOR A F W KING, I MS, has been granted privilege leave of absence for two months and twenty eight days, with effect from the 19th June 1913, or the subsequent date of

His Excellency the Governor of Bombay in Council is pleased to appoint Captain M D A Kuieishi, I M S, to act as Civil Surgeon, Aden, in addition to his own duties, during the absence on leave of Major A F W King, FRCS (E), I M S, or pending further orders

CAPTAIN W E BRIERLEY, IMS, has been appointed a Specialist in Operative Surgery from 16th June

CAPTAIN P M REANIE, I US, is appointed substantively Medical Officer of 32nd Sikhs

Captain F Stevenson, 1 M s , is appointed to the medical charge of 39th O I. Horse

Owing, it is said, to the reduction of the garison in S Africa only 7 Commissions were mailable at the R A M C Entrance Examination on 23rd July 1913

The services of 2nd Class Assistant Surgeon J C Milburn, ISMD, we placed at the disposal of the Government of Burma, for employment on plague duty, with effect from the 22nd March 1913

Major H Innes, I ws., Civil Surgeon, Khasi and Jaintia Hills, Assam, is appointed to officiate as Civil Surgeon, first class with effect from the 8th May 1913, vice Major Leventon, I ws., on leave

His Excellency the Governor of Bombay in Council is pleased to make the following appointments

Lieutenant Colonel & E Piall, MR, BS (Lon), IMS, to act as Health Officer of the Poit of Bombry during the absence on deputation of Lieutenant Colonel W E Jennings, orders, Cdin), DPH (Dub), IMS, or pending further

Major J L Marjonbanks, WD, DPH (Edin), IMS, to act as Health Officer of the Port of Aden and Medical Officer European General Hospital, Aden, acce Lieutenant Colonel S E Prail, IMS, pending further orders

The Civil Surgeon of Bahraich is ordered to hold visiting medical charge of the Gonda district, tice Major R F Band, I VS, transferred to Benares

LIFUTENANT COLONEL J K CLOSF, I MS, Civil Surgeon Allahabad, is placed on special duty at Naim Tal

LIEUTENANT COLONEL W YOUNG, IMS, Civil Surgeon, Cawnpore, is placed on special duty at Naim Tal.

LIEUTENANT C G HOWLFTT, I WS, medical officer, 9th Bhopal Infantiy, is appointed to officiate, in addition to his military duties, as Cantonment Magistrate, Fyzabad, vice Majoi E G S Trotter, granted leave

THE civil assistant surgeon attached to the sadi dispensary, Gonda, to hold civil medical charge of that district, in addition to his other duties, vice Major R F Band, I M S, transferred to Benares

CAPTAIN N S SIMPSON, I MS, officer on plague duty, on completion of his training at Kasauli, is posted to the charge of the Lucknow cucle

CAPTAIN A F BABONAU, I M S, was transferred on 19th May to Ambala as Plague Medical Officer

LIEUTENANT T A HUGHES, I M S, was appointed Specialist in the Prevention of Disease, Bannu, with effect from 5th May 1913

CAPTAIN A J LEE, 1 M 8, 18 appointed Specialist in Electrical Science, 6th (Poona) Division, from 30th April 1913

CAPTAIN W R J SCROGGIE, I M S, was granted 2 years and 15 days' leave and is not due out till 28th May 1915

Major S A Russak, I Ms, got an extension of 5 months' study leave and is due out on 11th November 1913

MAJOR J J ROBB, I MS, leturns from furlough on 25th

Major J W. Cornwall, I M S , is due out from two years' leave on 9th September 1913

CAPTAIN A G MCKENDRICK, IMS, is not due out from furlough till 231d February 1915

THE services of Captain F W Cragg, INS, have been placed at the disposal of the Government of India, Education Department, for special duty

PRIVILEGE leave for three months, in combination with PRIVILEGE leave for three months, in combination with furlough for one year and study leave for six months, under Articles 233 (1), 260, 303 (11) and 308 (b) of the Civil Service Regulations and Rules 2 and 6 of the Study Leave Rules, was granted to Captain M F Reaney, MB, DPH, MRCS, LRCP, IMS, Civil Surgeon, Akola, with effect from the 29th June 1913, or subsequent date

CAPTAIN F P CONNOR, IMS, FRCS, and Captain C A Gill, IMS, DPH, have both taken the Diploma in Physicians, London

CAPTAIN F P CONNOR, IMS, FRCS, and Captain C A Gill, IMS, DPH, have both taken the Diploma in Physicians, London

LIEUTENANT COLONEL W MOLESWORTH, IMS, is due out from furlough on 14th December 1913

LIEUTENANT COLONEL F C PEREIRA, I MS, has gone on 14 months' leave and is not due out till June 1914

LIEUTENANT COLONEL R H ELLIOT, FRCS, IMS, 1s due out from combined leave on 18th November 1913

Major W J Niblock, IMS, Professor of Surgery, Madras, is due out from 15 months' leave in December 1913

MAJOR G B HARRISON, INS, was due out from long leave on 11th July 1913

Major A Miller, 1 Ms, got one month's privilege leave in

THE services of Lieutenant Colonel C Duer, ME, FRCS, I VS, are replaced at the disposal of the Government of Burma, with effect from the 1st May 1913

LIEUTENANT COLONEL C H JAMES, CIE, FRCS, IMS, is confirmed in the appointment of Civil Surgeon, Simla (West), with effect from the 1st May 1913

Myjor E O Thurston, Mr, Fres, Ims, is appointed to officiate as Professor of Surgery, Medical College, Calcutta, and Surgeon to the College Hospital, during the absence on leave of Lieutenant Colonel R Bird, M,vo, cie, yo, fres, iws, or until further orders.

THE services of Lieutenant Colonel H B Melville, wn, I ws, are placed at the disposal of the Chief Commissioner of Delhi

MAYOR THOMAS STODART, M.D., is promoted to be Lieutenant Colonel, IMS, with effect from 30th January 1913, and he also receives accelerated promotion

THE King has approved of the confirmation of the commis sion of the undermentioned Lieutenant on probation of the Indian Medical Service, with effect from the 27th July

Jordan Constantine John, M B

MILITARI ASSISTANT SURGEON MILL was appointed Civil Surgeon of Sambulpui, vice Major A Sanderson, IMS, transferred

ON relief by Crptain W J Fraser, MB, FRCS, IMS, on return from privilege leave, senior grade Civil Assistant Surgeon Lakshmi Narayan Chaudhii, LM & S, Officiating Civil Surgeon, Chandwara, is reposted to the Main Dis pensary, Saugor

ON relief by Civil Assistant Surgeon Muhammad Ali, L M & S, Major V H Roberts, PRCS, IMS, Officiating Civil Surgeon, Seoni, is transferred in the same capacity to

ON relief by Major V H Roberts, FRCS, IMS, Major I C S Ovley, FRCS, MRCS, IRCP, DTM, IMS, Civil Surgeon, Chanda, is transferred to Amraoti

ON relief by Major J C S Oley, FRCS, MRCS, LRCP, DrM, IMS, Captain J M A Macmillan, MA, MB, ChB, TRCS, LRCP, I,MS, Civil Surgeon, Amraoti, is transferred to Hoshangabad

ON relief by Captain J M A Macmillan, MA, MB, ChB, FRCS, LRCP, IMS, 1st grade Civil Assistant Surgeon Bipin Behari Gupta, LM & S, officiating Civil Surgeon, Hoshangabad, is reposted to the Main Dispensary, Hoshangabad

ON return from the leve granted him by Orders No 578, dated the 14th March 1912, and No 276, dated the 3rd February 1913, Major G Fowler, LRCP & S. DPH, IMS, Civil Suigeon, is posted to Akola

MAIOR D H F COWIN, I Ms, Civil Surgeon, 2nd class, is appointed Medical Adviser to the Patrala State, with effect from the date on which he assumed charge of his duties, acce Lieutenant Colonel C H James, I Ms, transferred

Major H R NUTT, I Ms, has been granted an extension of leave for one month and 13 days up to 31st October 1913

MAJOR H W ILLIUS, IMS, officiating Chal Surgeon, Rae Bareli, is deputed to Kasauli for training in clinical bacteriology and technique

THE services of Captain H C Brown, IMS, officer on special duty, are replaced at the disposal of the Government of India, Department of Education, with effect from the date on which he relinquishes charge of his present duties

THE Civil Surgeon, Lucknow, to hold visiting medical charge of the Rae Bareli district, vice Major H W Illius, IMS, deputed to Kasauli

MR H G H MUNROWD, officiating Civil Surgeon, Garo Hills, is tested with powers equivalent to those of a Magistrate of the third class as defined in the Code of Criminal Procedure (Act V of 1898) and with the powers of an Assistant Commissioner under the rules for the administration of the Garo Hills district prescribed under section 6 of the Scheduled Districts Act, XIV of 1874, to be exercised within the Garo Hills district

IN supersession of Government Notification No 4364, dated the 10th June 1913, His Excellency the Governor in Council is pleased to appoint Major J L Marjor banks, M D D P H (Edin), I M S, to act as Health Officer of the Port of Bomby, during the absence on deputation of Lieutenant Colonel W E Jennings, M D, C M (Edin), D P H (Dub), I M S, or pending further orders

MR FRANK RODRIGUES, LM & S, has been appointed as a temporary Civil Assistant Surgeon with effect from the 22nd May 1913

Maior W GLEN LISTON, CIF, MD, DIH, 1MS Duector, Bombay Bacteriological Laboratory, has been granted privilege leave of absence for two months and fourteen days, with effect from the 15th of June 1913, and placed on deputation for a period of a fortught after the expiry of his pinilege leave

His Excellency the Governor in Council is pleased to appoint Captain T H Gloster, ME, DPH, IMS, to act as Director, Bombay Bacteriological Laboratory, during the absence of Major W Glen Liston, CIE, MD, DPH, IMS, or pending further orders

His Excellency the Governor in Council is pleased to appoint Captain A J V Betts, M B (Lond), I u.s., to do duty as Deputy Sanitary Commissioner, Western Registration District, rice Major J L Marjoribanks, u.d., d. p. p. H (Edin), I M s., as a temporary measure, pending further orders

THE following promotions and reversions are ordered in the Civil Medical Department, Burma

the Civil Medical Department, Burma—
Major F A L Hammond, I M S, First Class Civil Surgeon,
sub pro tem, is appointed to officiate as First Class Civil
Surgeon with effect from the 1st May 1913, the date on which
the services of Lieutenant Colonel C Duer, I M S, on level
the services of Lieutenant Colonel G Ouer, I M S, on level
were replaced at the disposal on the Government of Burma
Lieutenant Colonel J Penny, I M S, officiating First Class
Civil Surgeon on combined leave, to revert to his appoint
ment as Second Class Civil Surgeon, with effect from the 23rd
January 1913, on the expiry of the privilege leave portion
of his leave

January 1913, on the express of the privilege leave portion of his leave

Mayor P Dee, I MS, who was appointed to officiate as a First Class Civil Surgeon in this department Notification No 30, dated the 17th January 1913, to continue to officiate as a First Class Civil Surgeon in place of Lieutenant Colonel T W Stewart, I MS, on leave

Major A Fenton I MS, who was appointed to officiate as a First Class Civil Surgeon in this department Notification No 31, dated the 17th January 1913, up to the 6th January 1913, to continue to officiate as a First Class Civil Surgeon up to the 22nd January 1913, in place of Lieutenant Colonel J Penny, I MS, on pivilege leave, and from the 23nd January 1913, in place of Lieutenant Colonel Castor, I MS, on leave

Major F V O Beit, INS, to officiate as a First Class Civil Surgeon with effect from the 25th December 1912 to the 6th January 1913, both days included, in place of Lieutenant Celonel J Penny, IMS, on leve

## Motrce.

SCIFNTIFIC Articles and Notes of interest to the Profession in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if requested

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### BOOKS, REPORTS, &c, RECEIVED -

Murphy's Surgical Clinics, Vol. 2, Part 2 W. B. Suinders & Co. Hornsby's The Modern Hospital (Price 30s) W. B. Sainders & Co. Thorne's The Nanheim Treatment of Heart Discuses Bailliere, find all

Thornes The Nanhelm Treatment of North Discuss Dannets, The & Cov

Cables Golden Rules of Diagnosis and Treatment C V Moshy Co
Watwick and Tunstalls I Irst Aid (I Ighth Edn) I Wright & Son
Haffkine's Inoculation against Cholera Thacker, Spink & Co
Report of Malaria Committee, Madras (Govt Press)
Smitary Commissioner's Report India
Vaccinc Therapy C V Moshy Co
Jones Tonic Medication H K Lewis
D Walsh' Discusses of the Skin Baillière, Tindall & Cov (63)

## LETTERS, COMMUNICATIONS, &c , RECEIVED FROM:-

Major Corrie Hudson, IMS, DSO, London, Lt Col L Rogers, CIE, IMS, Calcutta Major OG Lalor, IMS, Rangoon Major A Cochrane, IMS, Naini Tal, Dr Macnamara, FRCS Nartra, Dr Muir, Kalna, Lt.-Col B Lane, IMS, Nagnur Capt Berkeley Hill IMS, Lahore, Capt V Nesheld, Agra, Capt Ocerbeck Wright IMS, Agra, Dr Valentine, Assam, Lt Col Newman, IMS, Alipore, Dr Bulloch, Travancere

# Original Articles.

GLEANINGS FROM THE CALCUTTA POST-MORTEM RECORDS. No VII, DISEASES OF THE NERVOUS SYSTEM

BY LEONARD ROGERS, CIE, MD, FRCP, IMS,

Professor of Pathology, Calcutta

Diseases of the nervous system were primarily responsible for 5.2 per cent of 1,000 recent postmortems at the Calcutta Medical College Hospital, including 0.5 per cent of tubercular meningitis, which has already been dealt with in the second paper of this series They may be conveniently considered under the following herdings Inflammatory diseases, nearly all different forms of meningitis, (2) Vasculai lesions such as cerebial hemorrhage, thrombosis and embolism, and (3) Tumours, etc.

### 1 -MENINGITIS.

It is only during the past eleven years that bacteriological examinations have been at all regularly performed at the Medical College. so the last 1,000 post-mortems furnish the most accurate information regarding the incidence of the various forms of acute meningitis as shown in Table I. The cases in the whole 4,800 nost-mortems are also given, those in which lobar pneumonia was also present having been classed as pneumococcal in origin.

TABLE I The prevalence of different forms of meningitis

					Jeero	
	1,000	RFCF\I	P Vs	TOTAL 4,800 P Ms		
	Nun	Number		Num	Percen	
	Pri mary	Secon dary	tage	bor	tage	
Tubercuin	5	2	0 7	28	0 59	
Pneumococcal	11	2	13	42	0 87	
Streptococcal	2	1	03	3	0 06	
Septic	}	1	0 4	10	0 21	
Czuse	3		03	56	1 16	
Chronic	1		0 1	2	0 04	
Total	23	5	31	141	2 94	
m					ſ	

The most striking points brought out by the ligures of Table I are, firstly, the great frequency of during the last eleven years of pneumococcal

meningitis and the absence of that due to the diplococcus of Weischelbaum, the causative organism of cerebro-spinal fever The latter disease does occur in Calcutta not infrequently among the coolies in the emigration depots, where it has been investigated by Lieutenant-Colonel E H Brown, 1 MS, and myself, and cases have also been occasionally verified in the Medical College Hospital by finding the diplococus of Weischelbaum in the cerebro-spinal fluid obtained by lumbar puncture Nevertheless, it is clear that it is much rarer than the pneumococcal form in Calcutta, for the coole depôt cases are probably largely due to imported infection. The distinction is of the greatest practical importance now that Professor Flexner has made a serum which is highly efficient in the case of time cerebro spinal fever, although not so in the pneumococcal form. He has kindly sent me some for use in the former disease, but it is clear that the form present must be ascertained by lumbar puncture, and microscopical examination to determine the organism present before the serum treatment can be used effectually in acute meningitis of this as of other countries It is also to be hoped that a serum against the more prevalent pneumococcal form may be made on similar lines to Professor Flexner's valuable production

Doubtless most of the cases in the earlier records were also pneumococcal in nature, for it will be seen from Table V that their seasonal incidence was piecisely similar to that of the recently verified cases of this disease Further information regarding the prevalence of true cerebro-spinal fever in India will be found in my book on Fevers in the Tropics

Primary streptococcal meningitis is of interest on account of the very acute course it runs, death having taken place within a day or two of the appearance of definite symptoms with only scanty inflammatory effusion in the cerebral

membranes, just as in the fulminant form of cerebro-spinal fever

Staphylococci were found both microscopically and in pure culture in the fluid obtained by lumbar puncture in a patient who ultimately

made a good recovery

Secondary septic meningitis in the recent case classed as streptococcal was a terminal complication of kala-azai In the other nine cases it was secondary to middle ear disease in three, a terminal infection of kala-azar in four, in two of which cancium ous had spread to the base of the brain, in two cases pus was also present in the knee-joint, and in a third there was suppuiation in a ovalian cyst

Chionic meningitis was met with twice. In one case it had caused obstruction of the connection between the fourth ventucle and the spinal membianes, with acute dilatation of the ventricular cavities of the brain in an European male aged 29, the exact cause of the condition

not having been made out,

Post-mortem—The pneumococcal form was found to affect chiefly the superior surface of the brain, where a thick layer of purulent fluid is found infiltrating the pra-arachnoid membrane, while the base of the brain is usually less affected and the spinal cord least of all. On the other hand, in the cerebro-spinal fever due to Weischelbaum's diplococcus the whole of the surface of the brain and cord is more uniformly involved, while the tubercular form affects chiefly the base of the brain

# AGE, SEX AND RACE INCIDENCE OF ACUTE MENINGITIS

The age incidence of acute meningitis cases is shown in Table II, together with those for cerebral hæmorrhage and other vascular lesions, which will be dealt with in the second section of this paper. On comparing the ages of the meningitis cases with those of the whole of the post-morten subjects, as shown in the last column of the table, it appears that the acute inflammation of the cerebral membranes was most frequent in the third decade of life, during which 45.75 per cent of the cases occurred against 35.3 per cent of all diseases, while it was in corresponding defect in the other decades—

Table II.

Age Incidence of Diseases of the Nervous System

			====		==:	<del></del>				
A <sub>b</sub> es	Primary Meningitis	(Non Tubercular )	Cerebral Hemorrhage		Thrombosis			Other Nervous diseases	Total Nervous disenses	All diseases
	No	%	No	%	No	%	No	1 %	%	%
0-10	4	50								25
11-20	6	75	1	31	1	59	1	77	67	13 4
21-30	39	48 75	5	เ5 6	2	11 8			67	35 3
31-40	17	21 25	5	<b>15</b> 6	4	23 5	1	77	16 7	27 8
4150	10	12 5	9	28 3	5	29 4	s	61 5	43 3	13 3
51-60	4	50	10	31 25	3	17 6	2	15 4	16 7	58
60			2	6 25	2	11 8	1	77	100	19
Total	80		32		17		13			

The sex incidence of meningitis and of vascular lesions of the brain respectively are shown in Table III, from which it appears that there was no special incidence of meningitis in either sex, the figures being within one per cent of the normal in each—

TABLE III
Sea Incidence of Diseases of the Nerrous System

	Men ingitis		Cerebral H umor rbage		Thrombo		t]] di 02509	
	No	%	No	%	No	%	No	%
Males	62	77 5	19	61 3	24	80 0	1	75 1
Females	18	22 5	12	38 5	6	20 0	İ	219

The race incidence of meningitis and of vascular lesions of the brain respectively are shown in Table IV—

Table IV.

\_Racial Incidence of Diseases of the Nerious

System

		Men Cerebral Hiemor n <sub>e</sub> itis rhage		Granular Kidney		Throm hosis & Cerobral softening		All disenses		
	No	%	No	%	No	%	No	%	Ио	%
Hındus	60	<b>75</b> 0	21	67 7		62 0	20	G6 7		67 4
Maho medans	14	17 5	1	129		20 4	6	20 0		20 5
Eur opeans	4	50	5	16 2	ì	15 4	4	13 3	Ì	82
Others	2	25	1	3 2		22			•	39

It thus appears that 75 per cent of the meningitis cases occurred in Hindus against 67 4 per cent of that race in the total records, while only 17 5 per cent were in Mahomedans against 20 5 per cent of that race, so that the fatalities from this disease were somewhat in excess among Hindus in proportion to their numbers—

TABLE V
Seasonal Incidence of Acute Meningitis

		imococcil form		)ther=
Cold season (Nov to Feb )  Hot season (Man to June)  Ramy season (July to Oct )	No 18 7 5	% 60 0 23 3 16 7	No 22 11 5	% 59 0 28 2 12 8

In Table V showing the seasonal incidence of acute meningitis, the pneumococcal forms cases are given separately from the remaining unclassified ones, which serves to bring out the very similar distribution of both groups. This has been already referred to as strongly indicating that most of the earlier cases without bacteriological examinations were almost certainly also mainly pneumococcal in origin. The

fact that they occurred most frequently in the cold weather months and least so in the rainy season, in a similar but more marked degree than lobar pneumonia itself, as pointed out in No V of these papers, also confirms this view.

# II — VASCULAR LESIONS OF THE CENTRAL NERVOUS SYSTEM

The vascular lesions of the central nervous system are shown in Table V both for 1,000 recent post-mortems and for the total 4,800 subjects

Table V
Vascular Lesions of the Central Nervous System

	1,000 RECENT P Ms		Тотаг. 4,800 Р Мs	
	No	Percent age	No	Percent nge
Intia cerebral hæmor rhage Sub dural hæmorrhage Thrombosis of cerebral	6	0 6	3 <u>4</u> 7	0 71 0 15
arteries Embolism of cerebral	7	07	19	0 40
arteries Hemiplegia with cerebral			5	0 25
softening 'cause	7	0 7	12	0 25
Total	20	20	77	1 61

Cerebral Hamorrhage—The first point of interest in Table V is the comparative rarity of cerebral hamorrhage as a cause of death, only 0 6 to 0 7 per cent of the total mortality having been thus produced. This small proportion is largely due to the average low age incidence of the total subjects already pointed out, but is doubtless also closely related to the much lower blood-pressure of natives of India as compared to that of Europeans

The Age Incidence is shown in Table II, from which it will be seen that 29 4 per cent of the patients were over 50 years of age against only 74 per cent of the total subjects, while between 41 and 50 the incidence of cerebral hæmorihage was twice the normal rate. This is a somewhat early age for numerous cases of cerebral hæmorihage, and is no doubt associated with the early appearance of degenerative lesions of the uteries in natives of India which has been demonstrated in the third paper of this series.

The sex incidence of cerebial hamorihage is shown in Table III, and it is remarkable for the fact that 38 5 per cent of the cases were in females, against only 21 9 per cent of women in the whole post-mortem series. This very unexpected excess in women is explained by the fact which has been brought out in No VI of this series of papers, namely, that granular in men in nearly the same proportion (35 1 per cent) as cerebral hamorihage.

The frequency with which granular kidney and cerebral atheroma were noted in the subjects of cerebral hamorrhage is shown in Table VI.

### TABLE VI

Frequency of Granular Kidney and Atheroma of Cerebral Arteries in cases of Cerebral Ilæmorrhaye

Early granular kidney Marked granular kid ney Kidneys normal	5 9 15	Atheroma of cerebral arteries
		9

Thus in almost half the cases the kidneys showed some degree of granular change, usually of a marked nature, while in the remaining half in which the kidneys were normal in almost two-thirds atheroma of the cerebral arteries was recorded, two-thirds of whom were fifty years of age and upwards. It is clear from this that contracted granular kidneys and atheroma of the cerebral arteries are the two great factors predisposing to intracerebral hæmorrhage in natives of India, who form the great majority of the patients,

The Racial Incidence is shown in Table IV The most noteworthy feature is that the percentage of cerebral hæmorrhage cases was twice as great among Europeans as the proportion of that race in the total series This high incidence is associated with an equally high proportion (150%) of granular kidney in European subjects, both being related to the much higher proportion of this race over the age of 50 as pointed out in the paper on kidney diseases, No VI of thus series The normal blood-pressure of Europeans is also from 10 to 20 millimetres over that of Indian races, which may also predispose them to hæmorrhages Mahomedans show a low incidence of cerebial hæmorrhage, the cause of which is not obvious as their average age is somewhat higher than that of Hindus who do not suffer so much from this affection

The position of the homor hage was in the great majority in the basal gringlia or their neighbourhood, producing hemiplegia, and they were equally distributed between the two sides of the brain. In two cases the lesion was in the cerebellum, including one in a Hindu male of twenty-two. Sir William Osler mentions two cases of cerebellar homorrhage in young girls. One of my cases was in an European male, aged forty-one. In a Hindu male of fifty the homorrhage was in the pons, the only one in the series. The cortical part of the brain was involved in four out of 31 cases, this being an occasional terminal complication of the

an occasional terminal complication of kala-azar Thrombosis of one or more of the large arteries at the base of the brain was recorded in 17 cases, while embolism was found only 5 times. In addition to these hemiplegia due to softening, in which the exact nature of the yascular lesion was not noted, accounted for 12

cases, in almost all of which thrombosis was the most likely cause, as no obvious condition likely to produce embolism was present. Taking the cases of thrombosis and those of softening probably due to thrombosis together, the cases were slightly more frequent in males than in females in proportion to their total numbers, as shown in Table III The racial incidence was about normal for Hindus and Mahomedans, but excessive among Europeans as shown in Table The figures of the age incidence shown in Table II indicate that these vascular lesions were comparatively rare below the age of thirty of normal frequency in the fourth decade of life, and much above the average after the age of forty, namely, 588 per cent against 231 per cent of subjects The largest number of cases occurred between the ages of 41 and 50, or a decade earlier than was the case with cerebral hæmori hage

The vessels blocked by thrombosis were one of the middle cerebrals six times, the basilar ritery in six, one or both the internal carotids in three, and a posterior cerebral artery in one frequency of complete thrombosis of the basilar artery in this series is of great interest several such cases which I have seen the vessels showed clear evidence of syphilitic disease, and there can be no doubt that neglected syphilis is responsible for the great majority of these frequent cases of thrombosis of the large vessels at the base of the brain, and probably also for most of the other cases of hemiplegia due to softening of the basal ganglia in which actual gross blocking of the vessels was not noted, but in which smaller arteries may have been involved This view is supported by the fact that gummata in other organs were found in several of the cases In two instances cerebral thrombosis occurred during convalescence from cholera, so such a lesion may account for some of the unexpected and disappointing deaths after apparent recovery from the acute stage of this grave disease

Embolism, as we have seen, is very much rarer than thrombosis as a cause of fatal hemiplegia in Calcutta. This is readily explained by the extreme rarity of rheumatic endocarditis, as pointed out in the third of this series of papers. Of the five cases in the 37 years records two were secondary malignant endocarditis and one to large vesitations on the mitral valve, probably of the same nature. One was a late complication of cholera, while in the remaining one the precise cause of the embolism was not ascertained.

The great frequency of syphilitic thrombosis as a cause of hemiplegia and the extreme rarity of embolism, apart from such an obvious and fatal disease as malignant endocarditis, is of great practical importance now that the recent improvements in the diagnosis and treatment of the disease make the prognosis much better than it was a short time ago, and should result in some of these cases being saved from death and serious life-long disablement due to cerebral syphilis

# III —REMAINING DISEASES OF THE NURVELS

The remaining fatal diseases of the nervous system are of much less frequent occurrence and require but brief consideration here. The most important are shown in Table VI

TABLE VI

The remaining fatal diseases of the nervous system

	IN 1,000 RECENT POST MORTENS IN THE TOTAL 4,800 POST MORTENS				
:	Уо	Per centage	No	Per centage	
Gummata Tubercular tumours Other tumours Cerebral abscess Epilepsy Paraplegra Other diseases	1 3 1 2 2 1	01 03 01 02 02 01	14 4 12 3 4 7	0 29 0 08 0 25 0 06 0 08 0 19 0 15	
TOTAL	10	10	53	1 10	

Cerebral tumours form about half the cases in Table VI, including gummata, which formed half of the cerebial tumous in the full series Even this is doubtless an under-estimate of the number of syphilitic tumours of the brain, as this organ was frequently not examined during recent years, while all the gummata noted in the records are probably not entered in the postmortem diagnosis, and so may have escaped being indexed This is boine out by the fact that almost all the cases of gummata of the brain are recorded in the carefully indexed first four volumes of the post-mortem reports during McConnell's time as cuiator of the museum and very few in the subsequent six volumes The figure in Table VI should therefore be doubled to give the probable true incidence of this lesion of the brain, which would give 0 6 per cent. The frequency of this destructive syphilitic affection of the brain emphasizes the importance of early diagnosis and treatment, as already pointed out in dealing with the equally important specific thrombosis of the cerebral vessels. Of the remaining tumours tubercular formed one fourth and nearly all the remaining three-fourths appear from the descriptions to have been glioma, the three in the recent series having been found to be so by microscopical examination

Cerebial abscess was very rarely met with, namely, three times in 4,800 medical cases. One was secondary to middle ear disease, one was apparently broken down gumma in the brain, a gumma being also present in the liver, while the remaining one was in the left occipital lobe near its inner surface and contained sterile pus and blood clots, so was apparently the result of the softening of a localised hæmorrhage

In the cases of epilepsy no cause was found postmortem except in one case with adhesions between the dura mater and the anterior fossa of the skull

Of the remaining cases Landry's paralysis was the cause of death in two, and in a third there was general paralysis probably of the same origin. Bulbar paralysis, heat-stroke and "serous apoplexy" each accounted for one fatality.

Paraplegia was the cause of death in nine cases It was due to gummata or syphilitic pachymeningitis in three, caries of the spine, lymphadenoma, and cancer of affecting the vertebral column in one each, and in the remaining two the origin was doubtful. Here, again, it is the syphilitic cases which are best worth bearing in mind on account of the possibility of great benefit being derived from timely treatment.

# SOME SIGNS OF TYPHOID FEVER AND ITS TREATMENT

BY P K CHITALE, Major, ims,

Civil Surgeon, Damoh, C P

Typhold fever as seen in Damoh does not always show the classical signs and symptoms but it differs to some extent in its mode of onset, character of temperature and intestinal signs. This fever is called in this district "Madhus a"

Fever is often accompanied with chills and algours and lasts more than three weeks. Temperature in third week may become intermittent or come down to normal gradually. Sometimes it remains steady in the third week and comes to normal in third or fourth week. During the course of the disease temperature sometimes comes to normal in second week but again rises and lasts for two or three weeks more.

Temperature in first week is generally high and ites in a step-like manner for two, three days reaching 104° or 105° with morning remission of 1° or 2° Frontal headache is pretty constant

Again, instead of diaithea, patients often complain of constipation but distension of abdomen is always present

Exuption does not always appear; but when it comes on, it often appears on 9th or 10th day and lasts for five or six days. It appears generally on abdomen but often comes on chest, thighs and neck also. Spots are slightly raised and dark looking and remain visible for two, three days or more. In some cases there is no eruption

This fever is frequently confounded in this district with inalarial, remittent and diagnosis becomes difficult as blood films show inclarial parasites under the inicroscope

I give below some notes on 83 cases of typhoid fever as came under observation during the last

In twelve cases fever resembled "Para Typhoid more or less Patients had server

frontal headache and bronchitis while temperature rose to 104° in a step-like manner by the end of first week with a morning remission of 1° or 2° and came to normal on 14th or 15th day. Abdomen was distended and in several cases there was distributed, urine gave diazo and methylene blue tests. Malarial parasites were absent.

Temperature—In more than half the cases it showed a gradual rise and fall. Some cases began with a sudden rise of temperature, in seven cases fever was accompanied with chills and rigours

One chart shows that the temperature came down to normal on 11th day. Another indicates megular type of temperature, and that the temperature became sub-normal on 18th day. A third points to death by hyperpyrexia. A fourth shows death by perforation

In nine cases temperature rose to 106° with a morning remission of 1° or 2° and came to normal in fourth week

In six cases temperature came down to normal during the course of second week but rose again and lasted for three weeks more.

In four cases it showed no decline, and death occurred through hyperpyrevia

Hyperpyrexia was noticed in six cases Temperature began to rise at the end of second week and continued, proving fatal in fourth or fifth week

Typhoid rash—More than half the cases showed eruptions in the second week. In some they were present on the chest and lower part of back as well. The spots looked oval and slightly raised and dark in colour. They disappeared in two, three days but remained persistent in several cases for about a week.

Gurgling in the Iliac fossa—This was noticed in some cases but tenderness in that rigour with distension of the abdomen was common

Bronchitis — This was of acute kind in almost all the cases

Pneumonia — This occurred in six cases in second or third week of the disease. It was either due to inflammatory process or to hypostatic congestion. Cases of inflammatory pneumonia proved fatal through failure of heart. Some degree of hypostatic congestion of the lungs was present in almost all the cases in the third week which cleared up with the general improvement and fall of the temperature.

films show malarial of cases Stools were liquid and light yellow of cases of typhoid ation during the last Diarrhea usually began in second week and lasted in some cases till the end of the third. Temperature varied with the number and character of the motions

Pulse—It was slow and small from the beginning It became still slower and weaker in the second week, and in fatal cases it became feeble and intermittent and finally failed

Delirium —It was present in almost all the cases in the second week

Tongue—It was covered with thick white fur but cleared up in the second and third week leaving a brownish white fur in the middle

- 1 Complications Hæmorrhage in the second week was not so dangerous as in the third
  - 2 Perforation was noticed in three cases
  - 3 Inflammatory pneumonia in six

Diagnosis —This fever often resembled malanal remittent Blood showed malanal parasites while the patients developed fevei in typhoid. of typhoid But temperature rose in a step-like manner day by day for three, four days with a morning remission of 1° or 2° Malanal remittent fever began with a sudden rise reaching a maximum of 104° or 105° within few hours and patients often had bilious vomiting

- (2) In Typhoid cases superficial abdominal reflex was absent
- (3) Urine gave diazo leaction in the early stages of the disease
- (4) Methylene blue test was also employed Unine gave green colour in the beginning of the disease, aqueous solution of methylene blue 1 in 1,000 was used
- (5) Thin blood films were prepared and blood examined after staining with Louis Jenner's Methylene blue Eosine mixture. The organism was detected in several cases stained blue.
- (6) Sedimentation test according to Messrs Parke, Davis & Co's Agglutometer No 2 was also tried. In several cases it gave positive results

Treatment—Successful treatment depended on early diagnosis Dietetic treatment was found most useful and important

Boiled cow's milk affitted with water or with bailey or lime water was given in almost all the cases. When it did not agree it was peptonized by adding a little of liq pancieatious

To prevent the formation of large curds one ounce of the following mixture was added to a pint of diluted boiled milk

Soda Bicai b ½ oz Sodium Chloride 60 grs Aqua 12 ounces

The milk thus prepared was slightly saltish but agreed well. In some cases half a drachm of sanatogen was added to boiled milk to increase its nutritive value. It was easily absorbed. Addition of little cocoa, coffee, or tea did not derange the digestion.

When milk in any form was not digested a pint of whey, with little cream and one drachm of sanatogen was readily digested and assimilated

It was of use in the early stages of typhoid Three pints of this prepared whey was found adequate in case of adults

Thin fice gruel in diluted whey sustained the strength and agreed with the patient in the second week

Little cream and chicken soup was also casily absorbed, but it excited diarrhea in some

One tablespoonful of palatable peptone twice a day (a special preparation of Messis Parke, Davis & Co) served as food and aided digestion

Fasting treatment was followed for three, four days, in suitable cases with benefit. It prevented distension of abdomen, checked diarrhea and brought down fever. In some cases white of egg in diluted boiled milk gave good result.

Drinks—White of two eggs mixed up with half a pint of water with little lime juice and sugar made a pleasant drink

Thirty drops of dil hydrochloric acid mixed with one drachm of glycerine relieved thirst and so also lime juice, lemonade, and oranges Cooled boiled water or barley water proved also useful in allaying thirst

Antipyretic treatment—Quinine was given in large doses but failed to bring down the temperature

I wo drops of oil of cinnamon every four hours reduced the temperature and produced sleep

Chlorinated quinine mixture, according to Di Yeo, was tried. It removed bad smell from the stools and reduced the temperature to some extent.

Hyperpyreria —It was treated with cold water treatment

- (1) Sponging the body with cold water
- (2) Cold baths in suitable cases
- (3) Wrapping the body with sheet wrung out of cold water
- (4) Wrapping wet cloth to the head or putting the patient on a wet sheet

Constrpation —It was present in more than half the cases When it remained persistent stool smelt badly

Dranhæa—(a) 315th grain of cyanide of mercury three times a day altered the character of the motions and changed their colour

(b) Calomel in 10th grain doses every two hours in suitable cases checked diarrhea and prevented fermentative action. Stools changed from light yellow colour to a dark brown in two, three days. It also reduced the temperature

This was followed by 10 grains of sulphocarbonate of soda three times a day in case of adults. It checked diarrhoa and removed the

(c) Bismuth subgallate in 15 grain doses in adults was useful in checking diairhea and hæmorihage

(d) Alsenite of copper in minute doses prevented decomposition, removed the bad smell and checked the frequency of motions

In some cases dia11hea 1emained persistent after the temperature came down to normal A suitable light diet and a small dose of castor oil emulsion checked it

Adrenalm chloride sol 1 m 1,000 (Parke, Davis & Co's preparation) checked hæmorrhage in typhoid stools raised the blood-pressure and improved the pulse Peritonitis was noticed in three cases Treatment was mainly symptomatic

### SALVARSAN ON TEA ESTATES \*

### BY DR J A VALENTINE

Barjuli, Assam

THE President and Gentlemen, I have to thank you for the privilege of reading a paper before you to-day and ask for your indulgence in listening to a short recount of my experiences with salvaisan, which I have some difidence in bringing before you, as I feel that I have but little matter on this subject to announce other than what has been already published in the medical literature of recent days. It may, however, interest you to hear the experiences of a colleague in working with this potent drug in the same climate and under the same mofussil conditions under which all of us are work ing, that is, without the benefit of a well fitted hospital or the aid of a staff of skilled assistants and nuises Since February 1911, I have administered salvarsan in 67 cases by the subcutaneous, intramuscular and intra venous methods, and neo salvarsan in two more on the 18th inst. In that month Feb 11 stimulated by the wonderful accounts of salvarsan which were appearing everywhere in medical literature, I ventured on an intravenous infusion of the drug in a case of broken down fungating gumma on the tibia in a native female I followed the method recommended by the makers in preparing the solution, that is 6 gram of salvarsan was mixed with about 30 grams water, some 20 m of a 15 % solution of Na O H was added and the whole made up to 300 ccs of normal saline. The resulting fluid was I confess not perfectly clear which the discoverers state that it should be, it was infused into the left median basilic vein and distressing symptoms at once appeared The patient's respirations became embariassed, the temperature rose to 102° F, convulsive attacks succeeded after some time and the patient died in collapse after

As distilled water was not available ordinary boiled well water was used. The sod chlor was specially purchased as chemically pure. I mention this case particularly as it shows how very careful one must be in preparing the solution for the intravenous method, 39 I have little doubt that the disappointing result in this case was due to the presence of solid particles in the fluid infused into the veins In subsequent cases where a perfectly clear solution was used in the intravenous method no bid symptoms ensued. This untoward event deterred me from using the drug for some time, however after two months a second series of cases was treated, but the intravenous method was abandoned for the subcutaneous or intramuscular following months, 5 cases were treated intramuscularly by the following method Half a dose or 3 gram of salvarsan was dissolved in pure methyl alcohol and diluted up to 10 ccs normal saline solution and injected into a muscle The first case was a chronic ulcer of the heel and the result was quite inconclusive

remained unaffected, so that it was probably not

syphilitic

Case No 3 An intiamusculai injection as above was given to a chronic syphilitic with rupia of cheeks, nose and painful ulcerations on the inside of the lips about 3 grain was given The woman was in an extremely bad condition, very anæmic, and unable to walk The result was good The lesions healed up and her anæmia improved so much that she went to work March 1912 the same symptoms excepting the anamia having recurred, she was given \( \frac{1}{2} \) dose hypodermically, but was not much improved as regards skin eruptions, but she remains strong and well otherwise. The small ness of the dose was due to a desire to avoid any risk and hence probably the incompleteness of the cure

Case No 4 Female with child at breast, she had syphilides on her forehead and corners of her mouth, the child had anal condylomata and dactylitis and swellings on both insteps which seemed gummatous. The mother was treated with \( \frac{1}{2} \) dose intramuscularly in the right buttock Hei symptoms rapidly disappeared and the child was also cured within two weeks apparently through the mother's milk In Martindale and West cote's book "Salvarsan" the explanation of the cure of the child in such cases is sui mised to be as follows sudden killing off of the spirochetes sets free a large quantity of endotoxins. This would produce antitoxins which may be carried over in the mother's milk and so act on the child A suggestion has been made that syphilitic mothers should, therefore, be injected with salvarsan and nuise their children, or if this is not practicable, they should obtain a syphilitic wet-nurse who had been recently injected with salvarsan

Case No 5 was a man with yaws all over his face which was like a mask of Jellow crust, his body also was covered with yaws. A full dose was administered intramuscularly as above in the left buttock and the Within 24 hours the jaws effect was extraordinary showed signs of shrinking, in a week they had shrivelled up and turned black. In three weeks there were only pigmented areas to show where the yaws had been This result was so remarkable that it is much to be regretted that the patient died some two months afterwards of extreme an emia, a disease from which he had suffered all through, this may have been the cause of death apart from the action of the salvarsan, but another explanation which implicates the drug, suggests itself, namely, that the destruction of myriads of spirochætæ iefringentes may have liberated too great a quantity of endotoxins for the organism to deal with and so caused the an emia

A case of a coolie unable to work from yaws in the axilla was completely cured by 1 dose given as above in the left buttock

Considerable difficulty was found in preparing the solutions for injection, solid particles would not dissolve and blocked the needles, so that the next series, cases No 7 to No 19 were treated by suspensions in olive oil I will not detain you by detailing the cases The immediate result in all syphilitic cases was the removal of the outward signs of the disease, though the dose was often as small as \frac{1}{4} of the full dose yaws responded in the same manner ielapsed and were treated again in the same manner or later on by the intravenous method The olive oil suspensions gave a good deal of trouble, lumps of salvaisan formed in it and blocked the needle and the pain was extremely severe, so that both in the difficulty of making the injection, and the severity of the pain this method offered no advantage over the watery solution The olive oil was raised to a temperature of 350°F immediately before operation. The syringe was temperature to sterrlise it. Great care must be taken to have the syringe quite dry, on one occasion a drop of water from the syringe was injected into the hot oil, the enormous expansion of the steam from the drop caused an explosion which flew all the oil out of the

<sup>\*</sup> Read at meeting, Assam Branch of British Medical

enamelled metal cup with a loud report, the drops of oil at 300°F or so raised blisters on the faces and hands

of my assistants and myself

The formation of lumps of salvaisan large enough to block the needle may have been due to acidity or other change in the oil, but blue litmus paper was unaffected by it A preparation called "Joha" consisting of 40% salvarsan in iodipin (iodine and oil of sesame) is advertised as painless, permanent and sterile, but I have no experience of it

Cases 20 to 50 were treated by solutions of the drug as before in pure methyl alcohol diluted with 9% sod chlor solution up to 10 ccs. and administered subcu-

taneously

The injections were made in the subscapular regions of the back and caused large, painful and puffy swellings which remained for weeks and gave the patients an excuse for extended sick leave till I found that the pain did not last more than a few days, though the tumour persisted much longer Among the cures were cases of deep ulcers of thumb and fingers, secondary rashes, bone gummata, syphilitic laryngitis One case of chronic ulcer of the ankle of doubtful origin was treated and cured by one injection and the diagnosis established mainly by this means. Morphia 1 to 1 grain was given in all cases, and in many cases repeated

as the pain was intense Cases 51 to 67 In July 1912, the intravenous as applied The apparatus used was extremely simple was applied but quite efficient a kerosine tin cut lengthways to form a sterilisei in which were boiled a litter flask, a long transfusion funnel, a filter funnel, a glass pestle and mortar, rubber tubing, clip, cannula, scissors, forceps, lancet, cotton-wool, lint, and some needles and ligatures. A stock solution of '9% Na Cl. one of 15% Na OH was also prepared Though the infusion is not painful, except for the operation of opening a vein, still it was generally found advisable to give 4 gr morphia after the infusion and to repeat it, if necessary, in order to keep the patient quiet and calm and so to foster the popularity of the treat The arm or other site of the infusion was usually treated with tincture of rodine or a 1 in 40 solu tion of iodine in petre, the latter seems to blend well with the greasy skin and acted well as an antiseptic

Half a grain of cocaine in m 20 water was usually in jected subcutaneously at the proposed site of infusion and gave uneven results endermic injection of this was also tried, but in many cases there was considerable evidence that pain was felt on incision, though most of the patients behaved very well indeed. One case a female was given chloroform at her own request, she asked for the 'pagal dawa' The method of inserting the needle directly into a vein through the skin was not followed

The salvarsan was removed from its capsule with the usual antiseptic precautions and mixed in the mortar with 20-30 drops of Na OH 15% sol and diluted up to 300 ccs with 9% Na Cl solution and poured through boiled cotton-wool on the filter funnel into the flask Sometime the solution was clear at once, but frequently the addition of more caustic soda was necessary this was added irrespective of its amount until a clear solution resulted, and the extra amount of Na OH proved to be innocuous in the intravenous method, though it is not advisable in the subcutaneous method on account of the lower degree of dilution which would give a degree of concentration of the alkalı likely to cause sloughing of the tissues injected

When the solution was ready the infusion funnel and nubber tubing were filled with the saline solution at noom temperature. The vein was dissected out and nicked with a snip of the scissors and the cannula inserted, and when infusion was proceeding satisfactorily, the salvarsan solution was poured into the funnel until the desired amount had been given The funnel then was filled with salme solution which was also infused, in this way the danger of mutating the wound or vein with salvarsan

solution was avoided, a matter of considerable importance for the success of the method As regards the temperature of the infusion, ordinary room temperature was sufficient in the waim weather, but sometimes if the fluid became too cold the vein contracted and the solution had to be forced into it by squeezing the subber tubing in a peri staltic soit of manner using one hand distally to prevent regurgitation into the funnel. It was also found that, by immersing the flask in boiling water and so raising the temperature of the solution The vein readily relax ed and admitted the solution freely so that the usual head of 13 to 2 feet could be diminished to a few inches without unduly slowing the infusion

I may remark here again on the care with which this drug must be handled, it was found that glass vessels only could be safely used for preparing the solutions An enamelled non bowl holding about 4 ozs was tried at first but whether the minute cracks, that are formed by heat or injury in the enamel, contained traces of drugs that acted on the 606, or whether the iron itself was the cause, it was often found that the salvaisan became discoloured and unfit for use in this class of vessel and so a glass mortar was substituted and answered perfectly

Cases 51 to 67 were treated thus from July 1912

Case 51, old syphilis, husky voice, tylosis, palmaris and antans 3 dose Symptoms removed soon,

Case 52 F, ulcerating late secondaries 4 dose plantaus

effective

Case 53 M, luxuriant anal condylomata, ulcerated and disabling from work & dose cured in two weeks Case 54 Two intractable ulcers at back of knee (uncertain diagnosis) 👌 dose, rapid cui e

The subsequent cases are similar I may, however, refer to No 58, a case operated on subcutaneously in May 1912, gummata. These relapsed and an intravenous infusion of  $\frac{1}{3}$  dose was given which removed the gummata rapidly (She had only received  $\frac{1}{6}$  dose in May as she was too an emic for more)

M received & dose in oil subcut, Fel, Case 59 dose in saline subcut, Case 59

March, 1912 dose intravenous, Sept, Case 59 M

Histeaction temp was very high 104°, he had condylo mata on the scrotum, and was rapidly cured by the third application

F, Yaws 24th April 1912 Yaws on body, Case 60 eylids, nose, chin and cheeks 2½ grains salvarsan sub-cutaneously in saline on May 8 yaws shrivelled, got well rapidly August 20 More yaws appeared, Septem ber 6, 1912 ½ dose intravenously All signs again disappeared rapidly and I saw her recently quite well disappeared rapidly, and I saw her recently quite well

Negative case F, cluster of small pus dis charging ulcers, builowing like sinuses found ankle This resembled actino mycosis, but no clubs were found under the microscope 1 dose was given, but the ulcers persisted for over a month They then healed but apparently from local treatment Salvarsan cures are characterised by rapidity

Case 62 September, 1912 Large Naga sore or phagedienic ulcer on calf of male dose No immediate nesult Salvansan does not seem to heal Naga sores by intravenous route, though perhaps local applications might have a better effect

Cases 62 66, ordinary, secondary and tertiary cases and yaws cases cured by 3 grain doses in less than two weeks, the lesions showed an improvement in 24 hours

Case 67 was a very satisfactory one Male with gummatous ulne, gummata broken down discharging pus from near both oleocranous Backs of both hands badly ulcerated, tendons exposed ½ dose had excellent results The lesions began to heal at once and were completely healed in less than a month He then went to work highly pleased, as he had come up from his country in very wretched condition.

In all cases where possible ordinary mercurial treat ment was continued after 606 treatment, and recovery of the patients from the outward signs of syphilis, but it was found very difficult to get the coolies to come regularly for treatment once the disease seemed to them to be quite cured

The cases which were not cured immediately by the

salvarsan were No 2 induiated ulcei of heel

No 9 Ulcers on leg

No 61 Treated intravenously, multiple ulcers on ankle of left leg, and case 62 the case of Naga sore

The diagnosis in all these cases was doubtful, and the drug seems useless for ordinary ulcers applied as I have described In the B M J, however, for Dec 28th, 1912, Dr H Alston, at the St Augustin Yaws Hospital in Irinidad, found that after he had cured practically all the available yaws cases he was able to cure also common ulcers by dusting them with a 1 in 3 powder of salvarsan or neo salvarsan in Xeroform or bismuth sub nitrate Result lapid healing in 36%, very satisfactory healing in 60% Failures 4% This is worth a trial, but the drug is very expensive

Besides the subcutaneous or intravenous methods the drug may be given per rectum in saline solution. In the B M J, Dec 7th, 1912, Trossarell, gaz degli osped, Nov 10th, 1912, says that he tried the method in varying doses, but in none of these patients was there the slightest effect as far as the syphilis was concerned

when the salvarsan was given per lectum On the other hand, Di C P Forsythe of Tezpui, in a personal communication, states that working indepen dently he has had distinctly encouraging results in the treatment of some cases by rectal saline injection lf this method is successful, it will simplify and the use of the drug, and put it more generally within the reach of the busy practitioner

The value of salvarsan even in the small amounts of h or h doses is very great in the anæmia of syphilities, in those cases who were extremely ill from this cause an immediate improvement set in, and when the an emia was cured larger doses were used to complete the cure of the specific lesions In case 5 a whole dose was given to a man with severe yaws who died of anæmia after In connection with this aspect of two months salvaisan, I may mention that Dr Hobhouse, County Hospital, Brighton, states in the B M J, for December 14th, 1912, that an injection of 3 gram of salvarsan intramuscularly followed by a second after two weeks cured a case of pernicious anemia. The hæmoglobin 10se from 30% to 100%, and the red blood corpuscles from 1 to 5 millions per c mm within four months

On January 18th, a case of yaws was injected with 45 gram of neo salvarsan intravenously neo salvarsan was dissolved in 90 ccs of a 4% sod chlor solution at room temperature. The new form of salvarsan is readily dissolved without the addition of acid or alkali and makes a perfectly clear solution, and 18 a great improvement on the older preparation in this respect The result was good the yaws all dried up and were invisible in 2 weeks Reaction temperature was 101° I No rigors or vomiting

A female, syphilis Iritis in left eye white cloud, apparently fibrinous had formed in anterior chamber and had grown across the chamber from the temporal margin almost filling it in 10 days in spite of mercurial treatment. The conjunctiva opposite the part affected was dry looking and copper coloured There was much pain Neo salvarsan 45 grms was given intratenously In a week all pain bad gone, but the white substance remained, and the eye only had perception of light. She however went to work and has not been

From my experience of salvaisan I consider it to be of great value in its power first of curing, the severe anemia of chronic syphilities, secondly, of removing the outward signs of secondary syphilis rapidly, thirdly, of curing tertiary lesions which have proved refractory to other treatment, fourthly, of removing rapidly the skin lesions of yaws and perhaps curing it permanently Mercurials and rodides may eventually remove all these manifestations of disease but not with the same rapidity, and certain forms such as tertiary bone lesions may be extremely refractory to these drugs, while under salvarsan treatment they heal readily

The above conditions are common causes of invalidity among garden coolies, and the treatment of them has hitherto been slow and unsatisfactory in its results, and the discovery of salvarsan has without doubt added greatly to our powers of dealing with the conditions mentioned above, and though salvarsan is an expensive drug and its administration somewhat difficult, it cannot be denied that it is distinctly a business proposition to spend a few supees in curing and so sending to work a coole who otherwise could only have dragged on a miserable existence, a trouble to himself and a nuisance to his employers At the same time the rapid cure of the patients has an excellent moral effect on other sufferers who are consequently willing to present themselves for treatment at our hospitals

### THE PSYCHOLOGY OF THE ANUS

BY OWEN BERKELEY HILL,

CAPT, IMS,

Offg Supdt, Central Asylum, I ahore

My reason for choosing the Psychology of the Anus as a subject on which to read a paper\* before the S I Branch of the B M A is that it is, in my opinion. thoroughly adapted for a short exposition of the principles that have been recently developed in the study of abnormal psychology on the Continent and in the United States of America

There is little doubt that when the past twenty years come to be looked back on from the distant future one of their chief claims to interest will be that they saw the buth of the science of abnormal psychology

Already the names of Freud, Jung Stekel, Putnam and Jones have become familiar to most students of

To Freud are we especially indebted for certain generalisations of the very first rank in wideness of vali

dity and importance of application

One of the most important contributions to the study of abnormal psychology has been the evidence which he has collected to show that a vast number of mental phenomena, langing from hallucinations and delusions to the most complicated phantasy productions invariably owe then existence to the presence of a group of conflicting ideas

Homogeniety of the mental content has disappeared because the mind contains ideas which are incompatible with each other, and dissociation has arisen as a method of avoiding the storm and stress which the warring of these mutually hostile elements would otherwise inevitably produce

Dissocration is therefore to be regarded as one of Nature's methods of dealing with conflicts which to the

unconscious mind appear insoluble by other means An investigation of any state of dissociation invariably displays the existence of a conflict as the primary cause

of the dissociation The conflict will be found, as a rule, to involve factors which are usually associated with the great primary

instincts which constitute the driving forces of the mind We find that a struggle is taking place in which one of these primary instincts is pitted against another, or the tendencies arising from such an instinct are opposed or thwarted by conditions forced upon the patient by

Freud considers that the origin of all cases of certain varieties of mental disease can be traced back to factors

<sup>\*</sup> Written for but not read owing to author's transfer to Lahore,

connected with a single one of the giert instincts, namely, that of sex

Even allowing for the immense power of the sexual impulse, and bearing in mind the fact that Freud's conception of sex is far wider than that covered by the ordinary use of the term his theory cannot be said to be quite satisfactorily established

Nevertheless, he has, in the course of his investigations, presented us with some data in regard to the origin and development of the sexual instinct in man which throw much light on what has hitherto been a very dark corner in the pathogenesis of some of the commonest neuroses

I trust that the few words which I have to say in regard to the effect the anal zone may have on the production of certain traits in a person's character may

help to illustrate this point

I will begin by quoting a short passage from one of Freud's works. He writes "It is a part of the popular belief regarding the sexual impulse that it is absent in childhood, and that it first appears in the period of life known as puberty. This, though an obvious error, is a serious one in its consequences and is chiefly due to our present ignorance of the fundamental principles of the sexual life. A comprehensive study of the sexual manifestations of childhood would probably reveal to us the existence of the essential features of the sexual impulse, and would make us acquainted with its development and its composition from various sources.

It seems certain that the new boin child brings with it the germs of sexual feelings which continue to develop for a time and then succumb to a progressive suppression, which is in its turn broken through by the regular advance of sexual development and may be checked by individual idiosyncrasies"

It is Freud's service to have investigated this inadequately chronicled period of existence with extraordinary acumen. In so doing he has made it plain that the "perversions" and "inversions" which reappear later under striking shapes, belonging to the normal sexual life of the young child and are seen, in veiled forms, in almost every case of nervous illness

It cannot be too often repeated that these discoveries represent no fanciful deductions, but are the outcome of rigidly careful observations which anyone who will sufficiently prepare himself for the task can verify

Now the instincts with which every child is boin furnish desires or cravings which must be dealt with in some fashion

The first pleasurable sensation which an infant experiences is necessarily that of sucking—the nipple of the mother's breast or its equivalent

The pleasurable sensation evoked by sucking evokes a desire for its repetition, so that in a short time the infant starts sucking its thumbs, a part of its lip, its tongue, or even its toes.

Similarly other portions of the body may become associated with the production of a feeling of pleasure of definite quality, or, in Freud's own words, may form an "erogenous zone"

If the infant accidentally hits upon any particular area, eq, the breast, nipple or genitals, its preference is

naturally given to such area

Thus the region of the anus, mainly because of its position, is liable to become an "erogenous zone," and its acquired sensitiveness is very likely to become increased by intestinal catarrh

Hence perhaps the reason for the saying that children who suffer from infantile diarrhea suffer afterwards from "nervousness"

At any rate the old physicians were given to connect the possession of "piles" with a neuropathic disposition

I believe it is a common colloquialism in Tamil to say of a person with a short temper that "he suffers from piles"

Now children who utilise the anus as a place for the production of pleasurable sensations are easily recognised by their habit of holding their frees

They will not pass then motions when set on the chamber pot and told to do so, but only when they feel inclined,

They are not concerned with the soiling of their beds or clothes all they care about is not to lose the pleasurable sensation of defection, which is enhanced by a loaded state of the bowel

This wilful retention of freces is doubtless frequently

a factor in the constipation of neuropaths

The significance of the anal area as an erogenous zone is millioled in the fact that most neurotics retain with cautious secrecy a very elaborate scatologic ceremo nial!

I believe that a good many cases of "pruntus ani"

have then origin in a perversion of childhood

We will now pass on to consider the alterations and modifications wrought by time and education on anal eloticism and its final effect on the character of the individual

From the age of four up to the age of eleven psychic forces rapidly develop in the child and these forces tend in later life to act as inhibitory forces on the sexual life

As ignorance is gradually displaced by knowledge and as moral and resthetic ideas are acquired, the perception of the existence and especially of the sources of sexual gratification tend to evoke feelings of displeasure

To displace this feeling of displeasure contrary forces (feelings of reaction) such as loathing, shame, etc, are developed. Thus the activity of the analzone as a component of the sexual impulse falls into abeyance, except of course in cases where, owing to accident or custom, this region continues to be employed for sexual purposes.

The suppression of the anal zone as a prominent factor in his sexual impulse is, however, not achieved without leaving a permanent mail on the character of

the person concerned

We may invariably notice that in after life such persons exhibit three strongly marked characteristics, i.e., orderliness, economy, and obstinacy. These traits may in addition embrace a group of allied tendencies. Thus orderliness may include physical cleanliness as well as scrupulosity in little things, while economy may shade into avarice, and obstinacy into spitefulness.

Before discussing the ontology of these reaction formations I will read a brief summary of a case report ed by Doctor A A Brill, of Boston, which illustrates my point admirably

"X, forty-four years old, divorced, a very successful merchant, was referred to me for treatment by Doctor The patient stated that his present Peterson illness dated back to his twentieth year On examina tion it was found that he presented a typical compulsion neurosis, and that some of the compulsive ideas were as follows. When eating soup he would blows When eating soup he would When eating sausage he would have think it urine The noise of the horn of a motor to think of freces car made him think of flatus, especially horse's flatus, on account of which he gave up automobile 11ding On going to sleep he became obsessed by visions of people having movements of the bowels. A woman's mouth made him think of the rectum, her eyes recalled the anus Shaking hands with a person recalled a man using toilet paper Looking at big fat persons would obsess him with thoughts of their feeal excrements, the size, consistency, etc. A person with protruding teeth would recall fæces protruding from the anus The moon constantly recalled the rectum

"X, dressed and looked very neat and gentlemanly He was very conventional, moved in very nice circles, and tried to make the impression that he was very particular about society matters. Thus, he often referred to a friend of his as not a 'gentleman,' because he would not always put on evening dress for the theatre. The slightest infraction of the general rule offended him. He lived in the best hotels and

belonged to some very fine clubs

"From his history I found that he was very selfwilled and obstinate He hated his brothers, and gave many instances to show how superior he was to them

"This attitude of mind was not confined to his

brothers but extended to other people as well

"He had consulted physicians in almost every principal city in the United States and abroad, and spoke

disparagingly of them all "He had also been a Christian Scientist and a New Thoughter, but as they did not benefit him he put them on the same level with the doctors His obstinacy and revenge led him into commercial competition with his own brothers, and when his elder brother implored his help and thiertened to blow out his own biains because of financial ruin, he not only refused to help him, but said to him 'Not a cent! Shoot yourself do you remember how you treated me?' As an illustration of his financial dealings the patient proposed to Doctor Brill's care if he would put himself under Doctor Brill's care if he would treat him for less than the doctor who was at present treating him! He told one doctor that as he was not he would request that one doctor that as he was poor he would request that the fees for treatment should be reduced, and the doctor not knowing his patient's circumstances reduced the fees 50% That same week the patient invested many thousands of dollars in a business venture in New York Moreover when his bill was sent him he sent his doctor a cheque for one tenth of the amount

"As a matter of fact, the patient is a very nich man owning large interests in a number of big commercial

houses

"He complained to Doctor Bull that the danggist to whom Doctor Bull sent him to have a prescription made "In fact, he was to all appearances a miser, although

he looked to all appearances a generous gentleman

"The story of his childhood revealed the fact that he had always had a hard time to control his rectum had been punished and jeered at for regularly soiling himself up to his sixth year

"At his ninth year he was sent home to disgrace for breaking wind in the class room

"He had always had an extreme interest for freces and for the gluteal region "

The history of this patient affords a striking example of the formation of "re actions" His scrupulosity in the conduct of his dress and affairs are one and all "re actions" against his anal and rectal obsessions, re, the formation of a strong sense of shame against his interest in things that are dirty, disorderly, or not pertaining

It is not so easy to connect the interest in defecation with obstinacy, but we must remember that even in fants can be self-willed when put on the chamber pot and that punful irritations of the skin connected with the anal zone (spanking) are utilised to break the child's obstinacy. We all know that when people wish to appraise spate or spateful most up they appraise spate or spateful most up they appraise. to express spite or spiteful mocking they invite people to kiss this region! Doubtless there is here a covert reference to a pleasure repressed

The relation between defecation and money though seemingly remote is not really so

We know that misers are called filthy (filthy lucie), and that in mythology, fairy tales, superstitions, and dreams money is intimately connected with faces (goose that

It is well known that the gold which the devil sends to his lovers is turned into excrement, and that the dead is nothing else than the personification of the suppressed unconscious sexual impulse

Still better known is the superstition that defeeca tion is associated with the discovery of valuable things Again in the old Babylonian teachings gold is referred to as the "dung of hell"

It is noteworth, that constipution in neuropaths cannot be ented by psychoanalysis (though it can be

cured by other means) until the money-complex has been brought to light and thoroughly thrashed out

In further support of this theory we may cite the fact that in persons in whom these re-action-formations have not occurred, that is, those in whom the anal zone is retained throughout life as an erogenous zone, as amongst pederasts, this triad of characteristics is not found, as most authorities agree in stating

Doubtless there are other character complexes which owe then origin to reaction formation against erogen ous zones but so far we know very little about them

I trust, however, that enough has been said in regard to the reaction formations against the anal complexes to illustrate the points to which I referred at the beginning of my paper, and I hope that I have made it fairly clear to you that the permanent distinguishing traits of a person are either unchanged continuations of original impulses, sublimations of the same, or reactions formed against them

### SOME OBSERVATIONS ON THE ÆTIOLOGY OF THE MALARIA IN BENGAL

BY SATYARANJAN SEN,

Asst Surgn (on Special Malaria Duty)

Much has been said and very little left unsaid about the Ætiology of Malana, and my only apology for the present paper is the fact that in spite of all the work done on the subject and the strenuous efforts of the Government to combat it successfully the disease continues its unabated vigour and year in and year out goes on working havoc on the teeming millions of India

The view now generally accepted regarding the causes which induce the disease is that the anopheline mosquitoes are responsible for the spread of the disease, and that conditions which favour the breeding of these insects tend to intensify it It is not the purpose of the present paper to challenge this view or seek in any way to disprove it

The popular belief regarding the causes which determine the degree and intensity of the disease may be summarised as follows -

Presence of jungle

Water-logging of soil and defective diamage as indicated by the presence of maishes and swamps

Presence of dried up or drying river or III canal

Pits and holes—tanks and borrow-pits

While I have not been able to find any place free from malana in the hyper-endemic area of Bengal, the results of my observations did not encourage any belief in the popular theory mentioned above In villages near about each other the disease varies in degree and intensity independently of the above causes

The following table gives the mean percentage of the enlarged spleen examined amongst

children under 12 years of age in places where I had carried out my observations —

Nam	ե	Number of Villages	Menn Spleen 1ate
Iessore	Thanah	85	79%
Bagherpara		64	63%
Chowgacha		19	69%
Jhikergacha		15	58%

It may give some idea of the health of the places, and the figures will be used frequently below for comparison

I Jungles—The following table gives the mean spleen rate classified in three classes according to the nature of village site—

Name	Dense	Moderate	Slight
	Jungle	Jungle	Jungle
Jessore villages	89%	77%	82%
Bagherpara ,,	68%	56%	53%
Chowgacha ,,	64%	74%	65%
Jhikergacha ,,	60%	59%	59%

To give some definite instances—In Jessoie thanah Rajapur, Hassimpur, Nandagiam, Mathurapur, Panchbari, and Roylapui-villages more or less free from jungles have spleen rate above 90 per cent, while Sataldanga, Dangabeara, Diapaia full of dense jungles—have spleen rate of about 70 per cent or below In Bagherpara places having dense jungles as Junglebadhal, Narkelberia, Telidangapara, have spleen rate of about 40 per cent, while Naldanga, Azmatpui, Deara, Talbari, Chechukhola which are free from them have spleen rate of about 60 per cent In Jhikeigacha thanah again jungly villages as Serampore and Magura have the same spleen rate as Jhikergacha which is not so jungly, and many other instances may be cited In none of the above villages were any special conditions noticeable to explain the apparent discrepancy

In most places the existence of malaria preceded the existence of jungles of in other words places which were at one time well populated have become jungles because malaria worked its lavages and depopulated them

II Marshes and Swamps—These undoubtedly favour the breeding places of anopheline but a number of villages situated right on them which are not more malarious than other places. The following table gives the spleen rate of marshy places compared to the average spleen rate.

Nave	Spleen rate of marshy places	Mean Spleen rate of all the places in the thanah
Jessore	78%	79%
Bagherpara	68%	63%
Chowgacha	70%	69%
Jhikergacha	54%	58%

The best instances I can quote in support of this is that of the Polba thanah near Chinsura There are some villages on the south called Bheris which rise right from the midst of marshes, but they are remarkably healthier than other drier places a little to the north

The presence of jungles in conjunction with marshes does not affect the general health in most places as may be inferred from the table below —

Name	Marshy places with jungles	Marshy places without jungles
Jessoi e Bagherpaia Chowgacha Jhikergacha	76 5% 75% 68% 63%	78% 62% 76%

Thus in Jessoie—Kutubpur, Gobra, and Bagdanga—maishy places full of jungles have spleen rate of about 60 per cent which is very much lower than the average spleen rate of the locality. In Bagherpaia, similar jungly places on maishes as Shalbaiat, Kailkhali, Paikpara, have the same spleen rate as Naldanga, Sadipur, Tagheria, which though situated on marshes are more or less free from jungles

III Direct up rivers and canals—Much has been made of the presence of direct-up and dying liver, and in this connection the Bhairab Valley in Jessore has always been pointed out as indicating the irrefutable connection between malaria and presence of direct-up rivers. Government in fact appointed a commission to consider the possibility of opening up the liver, but the table below shows that there is after all not so much connection as is generally supposed.

Namp	*Spleen rate of villages on dead river or canal	Mean Spleen rate of all villages of the locality	
Jessone	80%	79%	
Bagherpara	64%	63%	
Chowgacha	68%	69%	
Jhikergacha	52%	58%	

But to illustrate the point more definitely I may state that in Jessoie—Andulpota Dalnagore Sataldanga, Agrail, Nebutola, Inyetpui Gobra, Munshifpur, villages all situated on dead or dying rivers have spleen rate of less than 70 per cent In Bagherpara villages under similar condition as Paikpara, Gadighat Narkelberia, Bhulberia, Janglebadhal, have spleen rate less than 55 per Daharmagura, Kıssen-In Jhikergacha gunge, have spleen rate of about 45 per cent and in Chowgacha, Digalsinga, Majiali Kabilpur have spleen rate much lower than villages away from such nivers Of course there are many unhealthy villages on such rivers but it is not rate to find comparatively healthy ones under similar conditions

IV Pits and Holes etc—With regard to pits and holes, it is obviously very difficult to say with any degree of precision for there are few villages in Bengal which have not their full complement of such things, but their presence does not necessarily indicate a high spleen rate for Dhanghata and Chandpara in Jessore, Ararda in Chowgacha, villages having too many of them have no higher spleen rate than the surrounding places

One outstanding fact that can be noticed is the comparative better health of the newer villages. There are in many cases a relationship discernible between the age of the village and the intensity of the disease, and this fact is strikingly demonstrated in Paikpara and Chowgacha. In both these places, there are two villages side by side, one comparatively recent origin and the other a good deal older and their spleen rate are as follows—

Paikpara New		32%
Old	•	80%
Chowgacha New		 24%
Old		65%

This is partly due to the fact that new villages are started by men comparatively better off. They can build better houses, and can clothe and feed themselves well and so hold off the effects of fevers.

The collected facts above detailed are the results of my observations while working under Major Fry, IMS, Special Deputy Sanitary Commissioner for Malaria Research, and are published with his kind permission. I think they serve to show that many of the popular beliefs have little foundation on fact

# A RARE AND PROBABLY UNDESCRIBED RESIDUAL ERUPTION IN SMALL-POX-

By LAWRENCE G. FINK, M.B., C.M. (Edin.), Civil Surgeon and Superintendent, Central Jail, Myaungmya, Burma

Maung Thet She Buiman, aged 22 years, was admitted to Jail on 4th May 1912 in indifferent health, weight 128 lbs. This man belongs to Makale Pegoung village (Wakema Subdivision), where he states there were seven cases of smallpox. On 28th April 1912 he was for an hour in the house of a person in the scaling stage of the disease. On 29th April 1912, he left his village and went to Moulmeingyun where he was tried the following day by the local Magistrate and convicted. He remained in the Police Lock-up there till 3rd May 1912 and on that day was brought by steamer to Myaungmya and was admitted to Jail on 4th May 1912. On 20th May 1912, evening, he came to the Jail Hospital

with a temperature of 1046°F He was kept under observation the next day, and on 22nd May 1912, he was admitted and segregated, as eruptions appeared on his face, forearms and body He stated that he had had fever, backache, and pains in his joints from 18th May 1912, but had not reported feeling ill He had two fair-sized vaccination scars on his left arm, said to have been vaccinated 14 years ago, when he was eight years old He has not had small-pox before and has never been inoculated He has also not been re-vaccinated till four days after his admission to jail, but this was not successful He was then in the incubation stage of small-The prisoner stated that eruptions first appeared on the night of 21st May 1912, but these were not seen by us till the following morning and the question of diagnosis, small-pox or chicken-pox had to be decided The incubation period of the former is usually given as 12 to 14 days and that of the latter 17 days or more On 18th May 1912, when the man is said to have first got fever, he had been 15 days in Jail, and during this period had not been in contact



with any case of small-pox He says he has not been in contact with any such since 28th April 1912, ie, 21 days before he first got fever. As this appeared to be a very long incubation period for small-pox, the further development of the eruptions was carefully watched. The following are the principal points noted.—The vesicles developed slowly as in small-pox and scabs began to form on the face first on the 10th day. The

majority of the vesicles were globular, but some were nregular in shape. They were closer set on the face than on the body, closer on the forearms than on the arms, closer on the legs than on the thighs, closer on the back than on the front of the body, closer on the upper than on the lower part of the back, they were more numerous on the extensor than on the flexor surface of the extremities, they were well-developed on the hands and feet and formed wellmarked "seeds' in the palms and soles majority of the vesicles showed no umbilication and appeared superficial On pricking some collapsed and others did not Secondary fever occurred when the stage of pustulation began

The slow development of the eruptions, their appearance first on face and forearms, their density in the areas above-mentioned, secondary fever, and the presence of "seeds" in the palms and soles left no doubt as to the disease being small-pox. The incubation period was probably 21 days, but similar cases have been recorded by others. The photographs show the eruptions on the 6th day after their first appearance.

From 22nd May 1912 to 4th July 1912, the prisoner was under treatment On 5th July 1912. he was well and was put on the convalescent gang His face is decidedly pitted and to a lesser extent his body and his limbs His palms and soles show very clear scars of "seeds," there being at least on 20 each sole and as many on each palm British Medical Journal, 1st April 1911, pp. 741/7, in an article on small-pox, Dr A F Cameron states that on the palms and soles where the epidermis is thick, the pustule often does not ıupture Part of its contents is absorbed and the remainder, with the thick follicle, constitutes the deep-seated crust or "seed" He also says in the vesicular stage the lesion on the palms and soles appears as a small, dark, almost black area These were very evident in the case of the prisoner, and each "seed" had, in Cameion's words, "a sensation of unyielding solidity" The writer has also drawn attention to the fact that in cases protected by successful vaccination this lesion on the palms and soles is much less modified than it is in other places In Part I of the "Review of some of the Recent Advances in Tiopical Medicine, Wellcome Research Laboratories, Khartoum" page 29, the principal points in the differential diagnosis of chicken-pox from small-pox are given. It is stated here that "seeds" in the palms and soles are usually formed only in the latter disease It is interesting to note that this fact is known to Buimans who have also recognised the fact that in these lesions, when the skin breaks, a small haid substance resembling, as they say, "the seeds of a chilly" This is the literal translation of the Burmese word used to describe the lesion

They further state that it never occurs in chicken-pox

On 7th August 1912, the prisoner was discharged quite well from the convalescent gang and put on ordinary labour He increased in weight and looked perfectly healthy On 21st September 1912, two and a half months after he was convalescent, he had an attack of fever, but the temperature was not recorded The following morning papules appeared and some of these developed into vesicles A few of these vesicles became pustular and scabs formed The lesions were in every respect similar to those of a mild case of chicken-pox or modified small-pox prisoner had not been in contact with any person suffering from either of these diseases eruptions were most numerous on the back and chest, and there were a few on the face and ex-They were all very superficial and the scabs were thin On examining the hands two "seeds" were found on the palmar aspect of the left hand and one resembling the "dark, black area" described by Cameron and really a vesicular "seed," on the right middle finger On questioning an aged Burman prisoner, who has a reputation as a Saya (medicine man), about this strange phenomenon, he informed me that very rarely a residual eruption occurs after an attack of smallpox, that the skin lesions are mild and that at the same time there is usually a swelling of the glands in the axillæ or neck This information I elicited in the hospital on the morning of 1st October 1912, and in examining the patient a few minutes later on in the segregation cell I was informed by him that shortly after the eruptions appeared, the glands in the axillæ and in the femoral region were swollen to the size of a pigeon's egg He had not diawn attention to these swollen glands, and hence they were not On the 1st October 1911, examined at the time however, they were only just palpable in the left axilla and left femoral region This residual eruption and "seeds" in the palms were verified by Civil Assistant-Surgeon Mr K R Menon and the Sub-Asst Surgeon attached to the Jail There is no mention of any such Hospital lesson in the literature at my disposal, and I am unable to explain the cause of its appearance should here mention that, on the 1st August 1912 the patient was again re-vaccinated, but not successfully, as was anticipated

A labbit and a calf were inoculated with lymph taken from the vesicles of the lesidual eruption, but in neither case with any positive result. It appears to me that the viius was probably much attenuated, and probably in this stage the patient was not infectious. He was, however, seglegated.

The scabs had all fallen off by 4th October 1912 and the patient was practically well. No secondary fever occurred with the residual eruptions. The word "residual" appears to me to best convey

the Burman idea regarding the lesion In Crabb's "English synonyms" the word "residue" is said to be derived from resido, which signifies 'what remains back" The presence of the "seeds" was a noteworthy point and taken in conjunction with the eruption elsewhere leaves no doubt in my mind as to the nature of the lesion. I shall be pleased to hear of any observations that may have been made by others on this interesting and apparently very rare phenomenon.

# STERILIZED PUS FOR THE TREATMENT OF INFECTIOUS AND STERILIZED CANCER INOCULATIONS.

BY V B NESFIELD,

MB, CAPT, IMS,

Officialing Chemical Examiner, Agra

THE leasons for using sterilized pus in the place of autogenous or other vaccines are —

1 The great simplicity and cheapness

2 The pus is truly autogenous, this is not so with vaccines prepared from organisms grown on artificial media, for the organism is changed by such growth.

3 Besides the bacteria, pus contains toxins, and antibodies both extremely useful for thera-

peutic inoculation

The Method of Sterrhering the Pus.—Mr. the pus which must be evacuated as aseptically as possible, with an equal part of 1 in 40 carbolic acid in a small bottle. The mouth of the bottle should then be closed with a rubber membrane, e.g., inner tube of a bicycle tyre. It should now be put in a basin of cold water, which must be slowly brought to the boil

So as to allow air to escape, a hypodermic needle should be thrust through the rubber membrane. This heating should be carried out again next day

Dosage —Begin with 2 minims, gradually increasing to 15 minims. I inoculate every other day.

Cases—I will only give a short account of a few cases, the results have been universally very

good

Case I—Large psoas abscess pointing below Poupait's ligament. The pus was evacuated, glycerine and iodolorim introduced into the abscess cavity, and the wound sewn up. The pus was sterilized as above. 2 m. produced a local swelling, in 10 days the dose was increased to 5 m. and in 3 weeks to 15 m. The man went out cured in 6 weeks, and there was no fresh collection of pus.

Case II — Multiple deep pyæmic abscesses in a girl of 7 Each abscess was opened, washed out with 1 in 4 000 perchloride, and the opening sewn up. The pus was treated as above, and inoculation given. Notone of the abscess cavities refilled though 4 new ones formed which were dealt with in a similar way.

In two months the child was well with a normal temperature

Case III—Empyema, Mahomedan, aged 30. A 11b was resected and the pleura drained and

inoculations of the pus given.

Case IV Septic Breast case—This was complete removal of the breast for cancer, it was a very late and very offensive growth. On the second day the temperature rose, and there was pus under the flaps. She was given 5 m of pus from the pyæmic Case No. II. The suppuration ceased as if by magic

Other cases were compound fractures, mastord

abscess on mammary abscess, carbuncle

Cancer of Breast cases—On removal of the growth, it was cut into small pieces, and pounded with sterilized sand, 1 in 80 carbolic being used as a diluent. The emulsion was allowed to stand for 24 hours, and the supernatant fluid pipetted off, leaving the sand and large pieces of growth behind

This fluid was then sterilized in the same

manner as the pus

Case I—A Bharein from Mahomedpui I was not able to make the emulsion at once and left the breast in I in 80 carbolic acid, but found it putrid next morning and no vaccine was made. The cancer recurred two months later, both locally and in the opposite aimpit I removed the growth in the armpit, and began inoculations at once. The local recurrence became much smaller, and she was greatly relieved of the pain. She is still being treated.

Case II—A very late case Removed the pectoralis major and glands in the axilla, except for one large one which was adherent to the axillary vessels and nerves. A large veri tore at its junction to axillary vein, and was clamped, the clamps being left on. Inoculations were started at once of her own cancer vaccine. The mass in the aimpit shrank away altogether, and she left the hospital one month later apparently cured. There was no recurrence three months later.

Case III—Was a large cancer but there were no glands in the axilla—She was given inoculations immediately—There was no recurrence five months later—These three cases were operated on in Bijnor in the early part of November 1912.

The doses given well 5 m rising to 20 m. every third day

The inoculations did no haim, on the contrary a lot of good, but at present it is impossible to say more

The use of pus for the apeutic moculation seems to me to open up a very large field in practical therapeutics, I have found it far more beneficial than vaccines I have published these results, as I have not the opportunities now to carry on the work \*

<sup>\*</sup> Received 6th May '13 -ED., I.M G.

### A CASE OF SERUM THERAPEUTICS

BY SUB ASSISTANT SURGEON MILKHI RAM. 37th Lancers, Lahore Cantt

SICE A, of 37th Lancers was wounded by a wild pig in the Regimental grass farm at 1 P M on 29th January He lost a lot of blood there and his friends applied an improvised tourniquet, and filled the wound with burnt cloth—a native method of stopping hæmorihage The patient was brought to hospital at 4-30 PM He was pale and he had lost a great deal of blood pulse could be felt at the wrist but it was very weak, frequent and of low tension large wound about  $4" \times 3"$  on the inner surface of the middle of right thigh It extended deeply into the muscles, torn fibres of which could be seen at the bottom of the wound, it was very dirty and it could not be properly cleaned temporary tourniquet was loosened to see what vessels were injured. The wound filled rapidly with venous blood, but on sponging no definite vessel could be detected A proper tourniquet was applied and was loosened at 8 PM, but no hæmonhage followed

Next morning the hæmoirhage had quite ased On 1st Maich pus appeared on the ceased diessing and the patient had a rise of temperature, about 101° in the evening and it was little less next morning This continued, the temperature being generally normal or 99 in the moining and about 101 in the evening The patient was treated with stimulants, tonics and ligr morphia m xx at bed-time On the 5th he complained of difficulty in breathing and on auscultation over the lower end of the sternum, and at the tricuspid area a distinct murmur was heard This muimui faded towards the axilla murmur was soft and systolic in time evidently caused by a septic infection of the He complained of pain in the tricuspid valve joints and especially in the right knee decided to treat him with a vaccine, and a culture was taken from the wound by Assistant-Surgeon Blaker of the Divisional Laboratory on the 15th February

Report on the culture is shown below

M m of the vaccine was injected on 25th The patient had a reaction fever in the evening, and on the 28th his condition was somewhat improved The murmui, however, was louder than before, and the patient complained of severe pains in the right knee · Eight days later m vi of the vaccine was again injected.

8th March — Murmur was the same patient had a rise of temperature last evening, and he complained of severe pains near the night knee and did not sleep at night. The wound was reopened next morning and a pocket of pus about 3 inches deep was detected towards the knee, and on pressing over it a good deal of pus came out from the wound A drainage tube was inserted The mumui was a little less There was a considerable discharge of pus Vaccine m ix was again given on 13th

17th March - Patient is much better, the murmur is disappearing now and the wound is healing up

21st March -Vaccine m vii given General condition of case much better

25th March —The murmur has nearly disappeared, and there is very little discharge from the The dramage tube was shortened

29th March — The vaccine m xviii was again Patient had a smart re-action in the evening There is now very little discharge from the wound The wound is, however, becoming an indolent sinus The knee is flexed and cannot be extended

21stApril —To-day counter-incision made under chloroform Sinus scraped and the leg straightened and placed on a splint this time the patient made an uninterrupted

This case clearly shows the great benefit to be derived from serum therapeutics Before the first dose of the vaccine was given the condition of the patient was very bad From this first dose an improvement began and steadily con-Without the vaccine treatment the man would probably have died, or, if not, he would have had a very long illness and have remained an invalid

I am indebted to Captain T F Paterson, IMS, 37th Lancers, for permission to publish this case

BACTERIOLOGICAL REPORT ON THE CASE \*

On 15th February I took 5 cc of blood from the median basilic vein of Syce A of 37th Lancers, and this was inoculated into 2 flasks containing sterile broth, 100 cc in one flask and 200 cc in the other, 25 cc of At the same time blood was put into each flask three agai tubes were inoculated with scrapings from the side of the wound in the thigh flasks of broth were cultivated for six days but nothing grew On the agar tubes, however, after 24 hours incubation a number of colonies of staphylococcus albus, staphylococcus aureus, and It was considered bacillus pyocyaneus appeared probable that the cause of the infection was the staphylococci so they were isolated and a vaccine containing 500 million of aureus in each cubic centimetre was made But six weeks later a cul-In this culture ture was made from the wound

<sup>\*</sup> By G Blacker, ISMD, Assistant Surgeon, Divisional Laboratory, 3rd (Lahore) Division

there were a large number of colonies of staphylococcus aureus and a very few of staphylococcus albus and none of bacillus pyocyaneus Probably his opsonic index against staphylococcus aureus required raising, but as the wound healed very rapidly, the vaccine for this purpose was not used

# A Mirror of Hospital Practice.

A NOTE ON THE PREPARATION AND USE OF SUBGALLATE OF BISMUTH GAUZE

BY E A R NEWMAN, MD (Cantab).

LIEUTFNANT COLONFL, I WS,

Civil Surgeon, Alipore

THE impossibility of sterilizing iodoform gauze, and the technical difficulties of preparing it in an aseptic condition (unless one does it sonally), long ago raised doubts in my mind as to the safety and desirability of the home-made article, the use of which I have given up for Casting about for a substitute, some time bismuth gauze which was then coming to notice naturally suggested itself The colourless salts of bismuth are, however, open to the objection that, unless a colouring agent is employed, it is impossible to distinguish at a glance bismuth gauze from plain unmedicated gauze Subgallate of bismuth, a salt with a bright primrose colour resembling 10doform, suggested 1tself, especially as it had already an established reputation in the treatment of local venereal sores The only doubt that remained was whether it would prove sufficiently stable to withstand the disintegrating effects of high-pressure steam Practical experience has shown it retains its bright colour quite unimpaired, and as I have now tested it by daily use for the last eight months, I feel justified in bringing it to the notice of the profession

At my request Dr Ynanendra Nath Chatterjee, Resident Surgeon of the Sambhu Nath Hospital, prepared the gauze, using as a medium for the emulsion, one part of glycerine and two parts of rectified spirit. After the evaporation of the spirit the residual glycerine gives it a slightly damp feeling, which, however, disappears after sterilization and drying in a high pressure steam sterilizer. Further when thus dried there is no tendency for the salt to "dust' out

A second experiment using for the sake of economy an emulsion of curd soap was not so successful, as the gauze lost its bright colour and the gauze was dingy in appearance. We have therefore gone back to the original method, though I think the quantity of glycerine might be reduced by half the quantity of spirit being correspondingly increased.

The strength in which it has been prepared is 10% by weight of the gauze employed. This can of course be increased to 15 or even 20% if desired, but 10% gauze has proved satisfactory in mactice.

Preparation—The practical details of preparation are as follows—

- (1) Wash the gauze thoroughly in soap and hot water, and rinse in several changes of clean water. Dry
- (2) Cut the dry gauze up into convenient lengths for preparation (pieces of 1 yard or 4 yards in length are convenient in practice), and ascertain the weight of one such length. The quantity of the salt is then calculated
- (3) To get the exact quantity of fluid required, saturate one such length in water, pressing it lightly to get rid of any great excess. Then squeeze out the fluid as completely as possible, collect and measure it. If too little fluid is used it is difficult to get the salt evenly diffused. If too much the cloth drips and some salt is lost with an unnecessary waste of rather expensive materials.
- (4) Make an emulsion from the above data, mixing the salt with the glycerine first, and then adding the spirit, stirring it briskly the while with a glass rod
- (5) While still stirring 10, immerse the gauze just moistened—as quickly as possible and thoroughly knead it to get a uniform diffusion. To ensure this it is important that the gauze be previously just moistened, theoretically spirit should be used for this, but in practice water does equally well and saves expense

(6) Hang up or lay out to dry When dry, fold longitudinally three times, this gives an 8-fold gauze, and roll up

(7) Sterilize and store in a dust-proof receptacle

Incidentally I may remark that all antiseptic gauzes may be prepared in this way, varying the ingredients and proportions at will Plain water is only necessary for cyanide gauze, or for soluble salts

Uses —Subgallate of bismuth gauze prepared in this way has been tested for 8 months in a hospital containing 50 surgical beds, and from the experience thus gained I can confidently say it serves all the purposes for which iodoform gauze used to be advocated It is definitely ınımıcal to sapræmic infections and quickly abolishes the fector of foully septic wounds use it for packing suppurating cavities and sinuses and dressing granulating sores, and find that it checks and shortens suppuration use on aseptic wounds is pointless operation

Cost —As regards cost, an important item in hospital practice, I find on consulting Messrs Morson's price list that the price of bismuth

subgallate is 6s per lb and of iodoform 12s 6d a comparison in favour of the former by practically one half. The medium used, viz, rectified spirit and glycerine both add somewhat the total but this is trivial in comparison with greater excellence of the finished gauze the cost of which cannot much exceed two annas a yard

Advantages —Compared with rodoform gauze its advantages may be summarized thus Stability and consequent sterilizability. Absence of odom. Non-toxicity. No tendency to dust out. Cheapness Equal if not greater efficiency Equally easily recognizable, an advantage it possesses over other bismuth gauzes.

In conclusion I wish to acknowledge the help of my assistant Dr Ynanendra Nath Chatterjee in carrying out my instructions without his cordial assistance it would still have remained an idea only

### A LARGE UTERINE FIBROID

BY C C BARRY,

LT COL, IMS,

Supdt, Civil General Hospital, Rangoon

THE patient, a Burmese woman, aged 44 years, was admitted into hour tall with the large abdominal tumour

Previous History — Marined 22 years, one pregnancy, 21 years ago, male child, still living No miscarnages

Menstruation commenced at age of 13 years, regular, monthly, lasting four days painless, quantity normal

For last three months menstruation has lasted eight days and quantity has been excessive

Bowels constipated Micturition normal

The abdomen is completely filled by a nodular tumour which appears cystic in parts. It is moveable but so closely fills the abdomen and extends up under the ribs that movement is difficult.

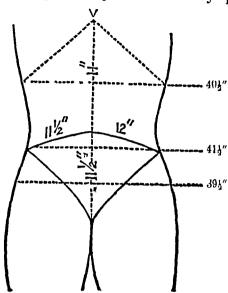
Per vagmam — Uterus is incorporated in the tumour which fills the pelvis. Sound passes  $6\frac{1}{2}$  inches

The patient states tumou was first noticed 18 years ago as a small lump in the middle line above the pubes and has grown steadily since. It has given rise to no pain, only discomfort from its size, for last six months the size has prevented walking exercise.

The growth at umbilious measured 41½ inches, other measurement as per marginal sketch

The feet and lower extremities are slightly ædematous

The patient's general condition was only fair, the weight and size of the tumour causing much discomfort and impairing sleep at night Operation —The tumour which was found to be a fibro-cystic tumour of the uterus was removed by supra-vaginal hysterectomy. There were no adhesions and operation presented no very special



difficulties except those occasioned by the size of the tumour The incision to deliver the tumour extended, from the pubes to the umbilious and the weight and size of the tumour hindered considerably the subsequent steps of the operation The broad ligaments which were greatly hypertrophied contained a large number of immense thin walled veins, some the size of the little finger, the ligation of these veins gave some trouble and anxiety one was torn immediately flooding the pelvis with blood The stump of the cervix was much hypertrophied, very vascular. and required numerous mattress sutures to satisfactorily check all bleeding

Owing to shock and loss of blood, it was thought advisable to give an intravenous injection of 2 pints of saline solution before closing the operation

The patient made a rapid and uneventful recovery

Patients, after the removal of large abdominal tumours, are very apt to suffer from shock and require the most careful nursing to ensure no unavoidable strain is thrown on the circulation, For this more especially any sudden strain reason, I always refrain from placing patients in the upright (Fowler's) position abdominal walls have become so stretched that for many days they afford no support to the abdominal viscera and any attempt to place the patient in the sitting position will allow the abdominal contents to prolapse to the lowest part of the abdomen with great engorgement of their circulation producing a condition that has been described as allowing a patient to bleed to The patient death into her own portal system should be kept as flat as possible and no sudden movements allowed for any purpose for several days

The tumour which weighed 40 lbs was found to be a fibro-cystic tumoui of the uterus. It was mainly composed of myomatous tissue with a few cysts containing a semi-solid colloid material. The enlargement had extended down into the cervix which was about 2 inches in diameter at the point of section. The cavity of the uterus was but little enlarged.

I have ventured to report this case as it is the largest uterine tumour I have seen in a country where large tumours are not uncommon, though I am well aware very much larger tumours than this one are on record. With spread of western medical methods, large tumours will become more rare, and it is perhaps as well to place on record any extraordinary specimens.

# REVIEW ON 422 CATARACTS DONE BY "SMITH'S METHOD"

BY RAM NATH TRIVEDI,

Sub Assistant Surgeon, Eye Hospital, Allahabad \*

In February 1912 my first paper on 'Smith's Operation in detail" was read before the 6th Conference of Sub-Assistant Surgeons at Agra

Now I desne to give my experience of this operation and its results in my last 422 cases I may say that the operation which I perform does not differ in any essential way from that of Colonel Smith, so that to give a description of the operation here would be superfluous

But I think it will give my brother Sub-Assistant Surgeons some confidence in the operation when they hear what success I have had with Smith's method

In the beginning I performed this operation only for immature and selected cataracts

I have now completely given up other methods of operation in favour of this, on account of the excellent results of this operation which I daily observe in the "Manohar Das-Eye Hospital, Allahabad"

72 of these cases were done for immature cataracts, and the increase in the number of operations every year shows that this operation is appreciated

SOME IMPORTANT ACCIDENTS WHICH MAY HAPPEN DURING OPERATION

(1) Escape of Vitreous—When I hear or read that "Escape of Vitreous" takes place in every case I immediately come to the conclusion that the spectator or writer of such remark does not know how to perform the operation. In my cases escape was 5.92 p.c. during operation and post-operation escape 3.31 p.c. and it was purely due to patients squeezing their eyes while counting

figures at first dressing but now I never give them a chance of doing so as the eyes are at once closed. As regard vision even after this accident, it is quite good—far better than can be expected in capsulotomy cases

With greater experience in operating by this method escape of vitreous gets less and less every year and is not the hug-bear it was once thought to be

(2) Rupture of Capsule—This occurred in 20 cases but was always easy to manage. The capsule was removed with a pair of dissecting forceps or with gentle pressure of lower lid and in this way the capsule as well as soft matter were entirely expelled. I have never had to perform a secondary operation after this accident.

### SOME IMPORTANT COMPLICATIONS

(1) In this — Percentage of nitis is very small after this operation and if it does occur, it is only of a mild type. The number of cases of this complication was two only

For treatment of this complication mercury is pushed freely as it cuts short the attack

Atropine is seldom used—Atropine has no curative effect in nitis besides old people do not bear frequent instillation of atropine lotion well

(2) Prolapse of Ins —Occurred in only 15 p c of the cases and every day this complication is vanishing

Sterilized eserine lotion useful in averting its occurrence whenever this complication is suspected

- (3) Panophthalmitis—1 4% was met with in my cases and was due to severe vomiting but largely to patients disturbing the dressing (ignonance and stupidity over which I am sorry I had no control)
- (4) Delay in healing of wound was very seldom seen, and if ever it was noticed, such patients were put on tonics

(5) Opacity of vitreous was not found in any case after this operation

(6) As regards post glaucoma, secondary humon hage or detachment of netwa or chonoid, I have fortunately never come across any of these complications in my cases up to this time.

### $V_{\rm ISION}$

Every case was tested before being discharged from the hospital and was put before the Superintendent of the Hospital himself for inspection. The average vision was from 6.15 to 6.8 and 97 pc of these cases got every good vision for distance as also for near work. Only 1.5 pc obtained poor vision for some pathological defect in the other refractive media.

Patients were asked to come back for glasses after three months' rest but those who have come from long distances were supplied with proper

<sup>·</sup> Read before the 7th Conference of the All India Sub Assistant Surgeons' Association on the 28th February 1913, at

glasses, but were strictly prohibited not to use them for three months

Subsequent examination for vision was also made in many cases and their results noted

The following statement will show that patients examined months or even years after the operation

had very good vision. The table given below of 20 cases is not made up of selected cases but they are simply taken as they came. I could give a large number of these, but the following will serve the purpose of showing the vision obtained in cases after this operation.—

No Nam	Name	Name Residence	Eye Ditc of Opera	Dite of Opera	Escape of	Result on 2nd Visit		
		l l		t1011	Vitreous	Date	Vision	RFVARKS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	T K G P T K N S do A A G P G M D S L N D S W U B B S M H W H G L S	Fatehpur Ghezipui Pai tabgai h Allahabad do do Agia Jaunpui Banda Moradabad do Allahabad Fatehpui Agia Allahabad Moradabad Pertabgai h Allahabad Allahabad	LIRLE EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	22 11 11 27 12 11 19 10 11 18 03 11 12 3 12 3 12 09 11 1 13 16 2 12 13 10 12 13 10 12 4 3 11 17 2 10 7 1 12 23 11 12 16 1 13 27 11 12 16 11 12 16 11 12 25 12 12 30 11 12	Slight	5 2 12 3 3 12 6 6 12 8 8 12 13 09 12 Oct '12 26 11 12 27 11 12 12 21 12 12 Dec '12 25 1 13 16 2 13 16 2 13 18 2 13 19 3 13 19 3 13 19 2 13 24 2 13 25 2 13	6/8 6/8 6/8 6/8 6/8 6/5 6/5 6/5 6/5 6/5 6/6 6/6 6/5 6/5	Immature above 100 years of age No iridectomy Granular lids Immature Immature  Disturbed the dress ing Immature Immature Immature Immature

I am very much obliged to Lt-Col J K Close, IMS, Superintendent (Civil Surgeon of Allahabad), for his kindly permitting to publish the results of my cases

### DATURA POISONING, By G M MUKOPADHYA

Case No 1 — Nursinghar, C I, Onkan girl, aged 3 years, was brought into the hospital at about 7 PM, 5th October

Present Condition — The child was brought in quite unconscious

Pulse—Very feeble and running breathing also very feeble

On enquiry it was found that the gill ate fiesh and unripe finits of datura, mistaking them for sarrfa (custaid apple) or seetaphal, which grows almost wild in this place

Treatment — An injection of strychnine was at once given and the child somewhat revived

The stomach pump was at once used and the contents washed out. A large quantity of chewed up datura fruit with reddish brown pulp and seeds were extracted, which were afterwards dried and weighed, and the result obtained was about 2 drachms.

The shock of the pumping was too much for the child and a condition of collapse set in Pulse could not be felt and breathing stopped

Artificial breathing was at once resorted to, and breathing restored after about half a minute

Another injection of strychnine was given the child revived, respiration remained troubled and pulse better for some time, but again the child began to sink

A dose of brandy ( $\frac{1}{2}$  drachm) was at once poured down the throat and steady friction over the extremeties used, pulse became better and breathing fair, but the child did not revive consciousness yet Cold affusions were used but without any appreciable effect

An injection of pilocaipine nitras 1 gr was given to counteract the effect of daturine, the result was marvellous, the child opened its eyes after a few seconds. Another injection after half an hour and a still further improvement was at once seen. Five injections of pilocarpine nitras were given in succession within 4 hours of 1 gr each, after the third injection the child was better.

Case No 2 —Rambai, girl, aged about 7 years, Hindu, was brought into the hospital at about 7 PM, 5th October

On enquiry it was found that this girl too ate unipe fresh fruits of datura, mistaking them for custard apples

Treatment—Stomach pump was at once used and a quantity of datura seed and pulp extracted, weighed afterwards and found to be about half a drachm

The child, however, began to sink, and an injection of strychnine given at once. Two injections of pilocarpine nitias of  $\frac{1}{6}$  gr each were sufficient to revive her consciousness and cold affusions with forced walking were also employed. The child survived and was discharged the next day

## Indian Medical Gazette AUGUST

### THE NEW I M S WARRANT

### IMPORTANT CHANGES

WE reprint herewith in full the new I M S Warrant of 3rd June 1913, as it is by no means a mere repetition of the previous Wariant of 13th March 1908 \* but seems to indicate a new depaitune which, according as it will be worked, may or may not be the beginning of very vital and important changes in the methods of promotion

We have italicised the most important changes -(Gazette of India, June 28th, 1913)

"London Gazette," dated the 3rd June 1913, pages 3919, 3910, 3914, 3915, 3918 and 3919

> India Office, June 3, 1913.

### GEORGE R & I

Whereas We deem it expedient to revise the rules for the promotion and precedence of Our Indian Medical Service

Our Will and Pleasure is that the Warrant of Our late Royal Father of the 13th March 1908, and Our Warrant of the 8th August 1911, be cancelled, and that from and after this date the following rules shall be established, and that by these rules Our Viceroy and Governor-General in Council shall be governed

The substantive ranks of Medical Officers in Gui Indian Military Forces shall be as follows -

Surgeon General (ranking as Major-General) Colonel

Lieutenant Colonel

Major

Captain

Lieutenant

The Director-General of Our Indian Medical Service shall hold the substantive rank of Surgeon General, but may rank as Lieutenant General, when approved by Our Secretary of State for India in Council

- An officer will not be permitted to remain in the service if at any time during the first three years from the date of his first commission his retention therein is, in the opinion of Our Secretary of State for India in Council
- Except as otherwise herein provided, a Lieutenant shall be eligible for promotion to the rank of Captain on completing three Jeans' full pay service, if he has previously passed such examinations as may be prescribed by Our Secretary of State for India in Council, and is in all other respects qualified and recommended who has not presed the prescribed examinations may be provisionally promoted, if, in the opinion of Our Governor General of India in Council, he has not had a

reasonable opportunity of passing Such provisional promotion may be cancelled as soon as he has had such opportunity and has not passed

- 4. Except as otherwise herein provided, a Captain shall be eligible, if in all respects qualified and recommended, for promotion to the rank of Major on completing nine years' full pay service in the rank of Captain This period may be reduced by six months in the case of an officer who produces satisfactory evidence of progress in any branch of knowledge which is likely to increase his efficiency A Captain who may be prevented by evigencies of the service from obtaining an opportunity of qualifying for such accelerated promotion shall have the concession open to him for a period of four years after his promotion to the rank of Major in ordinary course, but any antedate of promotion which may be granted shall be without adjustment of pay
- 5 Except as otherwise herein provided, a Major shall be eligible, if in all respects qualified and recommended, for promotion to the rank of Lieutenant-Colonel on completing eight years' full pay service in the rank of Major, including any period covered by antedated promotion without adjustment of pay
- 6 Time on half-pay, not exceeding one year, shall be allowed to teckon as service for promotion under Articles 3, 4 and 5, if removal to half-pay has been the consequence of medical unfitness caused by duty, military or civil
- A Captain after at least six years' service, a Major or a Lieutenant-Colonel may be promoted to the next higher rank by brevet for distinguished service in the field or for mentorious or distinguished service of an exceptional nature other than in the field
- A certain number of Lieutenant Colonels may be specially selected for increased pay for ability and ment
- Promotion from the rank of Lieutenant-Colonel with increased pay to that of Colonel, and from the rank of Colonel to that of Surgeon General, shall be given by selection for ability and merit, and the grounds of such selection shall be stated to Us in writing, and recorded in the Office of Our Secretary of State for India
- 10 A Lieutenant Colonel may also be promoted to the rank of Colonel, and a Colonel to the 1 rank of Surgeon General, for distinguished service in the field In any such case the Officer shall remain supernumerary in the higher rank until the vacancy to which, in the ordinary course, he would have been promoted, or, in the case of an Officer promoted to the rank of Colorel, until selection for the rank of Surgeon General
- 11 Exchanges between Officers of Our Indian Medical Service and Officers of Our Royal Army Medical Corps, being of the same lank and below the rank of Major, and transfers of Officers below the rank of Major from either of the above mentioned Services to the other, shall be permitted with the approval of Our Army Council and of Our Secretary of State for India in Council, and on the following conditions -
- (1) That the Officers have less than seven years'
- (2) That in the case of Captains, their seniority for the purpose of exchange shall be determined as if they ad been promoted after the period of service required

<sup>•</sup> For which see the ever valuable I M S Manual by Scton and Gould (Thacker, Spink & Co)

for promotion to that rank in the service into which they exchange, but that any alteration of date of rank made in pursuance of this provision shall be without adjustment of pay

- (3) Subject to (2) that the senior Officer exchanging takes the place of the junior on the list to which he exchanges, and shall not be promoted until the Officer next above him has been promoted, or has been refused promotion in consequence of failure to qualify for it
- (4) Subject to (2) that the junior Officer exchanging is placed for seniority next below all Officers on the list to which he exchanges whose commissions have the same date as his own
- (5) That the Officer transferred is placed for seniority below all Officers holding the same rank at the time of his transfer, and shall not be promoted until the Officer next above him has been promoted or has been refused promotion in consequence of failure to qualify for it
- 12 With a view to maintaining the efficiency of the service, Medical Officers shall be placed on the Retired List when they attain the following ages —

Director-General	62
Surgeon-General	1 00
Colonel	60
Lieutenant Colonel	1
Major	55

But a Lieutenant-Colonel who entered the service be fore the 1st April 1911, and who has been specially selected for increased pay under Article 8 may, if he attains the age of 55 years before he becomes entitled to the pension for 30 years' service, be retained until completion of such service, and in any special case where it would appear to be for the good of our service that an officer should be continued in employment, he may be so continued, subject in each case to the sanction of Our Secretary of State for India in Council

- 13 An Officer appointed after the 11th September 1890, who may retire on pension before completing 30 years' service shall be liable, till he completes 55 years of age, to be recalled to duty in case of emergency
- 14 Six of the most meritorious Officers of Our Indian Medical Service on the Active List shall be named Our Honorary Physicians and six Our Honorary Surgeons and they shall relinquish such appointment on retire, ment On appointment as one of Our Honorary Physicians or Honorary Surgeons an Officer under the rank of Colonel in Our Indian Medical Service may be promoted to the brevet rank of Colonel

Given at Our Court at St James's this twenty eighth day of May 1913 in the fourth year of Our Reign

By His Majesty's Command,

CREWE

Para 2 above is new, but no one will object to the Secretary of State having this power to get early rid of undesirables. This places the I M S on exactly the same footing as all other arms (vide A R I, Vol II, para 310)

The changes in the conditions of piomotion are more important and it remains to be seen whether

they are mere verbal alterations or whether they indicate a change of policy. The previous Warrants under which every man has entered the service or served in it, used as regards promotion the words "shall be promoted," and it cannot be maintained that the new expression "shall be cligible for promotion" is not a very material alteration.

We herewith contrast the two Warrants -

Wairant of Maich 13, 1908

Para 3—
"Except as otherwise herein provided a Captain shall be promoted to the rank of Major in completing 12 years' full pay service, &c

Para 4—
Except as otherwise herein provided a Major shall be promoted to the rank of Lt Colonel on completing 8 years' full pay service in the rank of Major

Warrant of June 3, 1913

Para 4—
Except as otherwise herein provided a Captain shall be eligible, if in all respects qualified and recommended, far promotion to the rank of Major on completing nine years' full pay service in the rank of Captain

Para 5—
Except as otherwise herein provided a Major shall be eligible if in all respects qualified and recommended for promotion to the rank of Lt Colonel on completing 8 years' full pay service in the rank of Major including any period covered by antedated promotion with out adjustment of pay

Lieutenants under the new Warrant must also be "eligible" and the expession "shall be promoted" is also no longer used

Judging by the number of letters we have received on this matter this important change in the conditions of service has been quickly noticed by officers all over India It is undoubtedly an important change, but it must be remembered that while we admit that the valuable privilege of automatic promotion is withdrawn the new rules merely place us on an equality with other branches of the army, and we must recognise the fact that selection may, in future, operate at various period (3 years, 12 years, 20 years), to retard the promotion of any individual whose conduct has been found That this new rule will be to be unsatisfactory popular is very unlikely but it must surely tend to efficiency, as at no part of an officer's career can be reckoned on promotion as a matter of course This rule will apply to all officers in the service

Apart from this (possibly) far reaching change the other changes in the new Wariant are of less importance

The rule by which a captain is promoted to major, unless his promotion is "accelerated," on completion of 9 years' full pay service as a captain, will also affect all lieutenants whose promotion to captain is delayed by failure to pass

their examinations Hitherto such officers, although delayed as regards promotion to captain would have obtained their majority after 12 years' service, now they will have to put in nine years as captains, therefore failure to pass the promotion examination to captain will carry with it delay in promotion to major and to it -colonel

The new Warrant also clearly lays down that the system of extensions of service to complete 30 years' service (and to get full £700 pension) is now definitely limited to officers who entered the service before 1st April 1911. In other words, the batch of 29th July 1911, and all subsequent batches will not get extensions of service after reaching the age-limit

The new rule of appointing officers on the active list to be Honorary Surgeons and Physicians to the King has been already announced and will, we believe, be generally approved

On the whole we hope the new Warrant will make for efficiency, though many will regret and a few will no doubt suffer from the withdrawal of the privilege of automatic promotion which hitherto has been a prized characteristic of service in the I M S, and as such we too regret its disappearance

# THE CALCUTTA SCHOOL OF TROPICAL MEDICINE

WE are glad to be in a position to announce that the scheme for the establishment of a School of Tropical Medicine in Calcutta is now so far advanced that it may confidently be expected to open in the autumn of next year It will be remembered that the suggestion was originally put forward in 1910 by the Medical Section of the Asiatic Society of Bengal as a suitable memorial to King Edward, but was unfortunately rejected in favour of other proposals, which by the way do not appear to have even yet matured Possibly some of the funds then collected may still be available for endowing the new institution? The Government of India, however, at once saw the great advantages of the proposal, and suggested tentative arrangements being made to start post-graduate teaching at the Calcutta Medical College Hospital without any additions to the staff or laboratories unpossible owing to a biological laboratory being As thus was already required, it was decided to build this on a site adjoining the Medical College, and to pro-

vide additional research rooms above for the Tiopical School It was not, however, until well on in 1912 that the sanction of the Secretary of State for India was obtained for the scheme the meantime a larger site than that for which the original plans were drawn up was sanctioned by the Government of India, which necessitated a reconsideration of the designs to make full use of the fine area now available Thanks the Government of India giving an extra lakh on the advice of Sir Paidey Lukis, the plans now adopted provide for a two-storied building with 220 feet of north light facing Colootolah Street, with foundations to carry a third story when it is required A library and reading room, as well as a practical class 100m, will be provided for the post-graduates, while the lecture theatre will be fitted for the use of the epidiascope, microscope projection apparatus and a cinematograph, as films of medical interest are now availillustrating such subjects as malarial prophylaxis and the movements of trypanosomes in the blood of an animal Further, a number of separate research rooms for different branches of medical science will be provided, in addition to a very fine general pathology laboratory, in which the post-graduates can be helped in working out their clinical cases and learning methods of research

One great essential remains to be sanctioned, namely, an adequate staff to enable the abundant facilities for teaching and research to be fully When the Government of India put utilized forward their first proposal for commencing on modest lines, they stated that it was their intention eventually to establish a fully equipped School of Tropical Medicine with a special staff The Institution is now arranged for, of its own and the question of the staff will be taken up before long, and it is understood that several whole time officers, who have already made their mark in scientific research, will be appointed Additional workers, specially qualified to carry out investigations in various branches of tropical medicine, will be required to completely man the new laboratories, and allow the fullest use to be made of the unique material in the adjacent Medical College Hospital and other large medical institutions of Calcutta The important practical results obtained in Calcutta in connection with cholera, epidemic dropsy, dysentery, etc., by the

very limited number of workers hitherto available, are a guarantee of more rapid progress when a body of experts is available to investigate the numerous scourges of the tropics What is now wanted are substantial endowments of several additional research chairs at a cost of three to four lakhs, or annual subscriptions of Rs 20,000 This would allow of the best workers in England and India being got together and given the great opportunities for research about to be provided in the premier city of the East Such a chance of being able to aid with their contributions in the prevention of suffering and death among the vast population of India should appeal with irresistible force to the numerous princes and philanthropists of this vast country Even from the purely business point of view of rupees it will pay the great industries of cotton, jute, tea and coal to finance research in these lines, a principle which is well recognised in the liberal contributions of English merchants to the Schools of Tropical Medicine Liverpool and London, the latter having recently raised over £70,000 for extensions alone It has been brought to our notice that the London School has been asking for donations and annual subscriptions from Indian railway companies and other bodies, but considering the much greater needs of our own school we are strongly of the opinion that the Calcutta institution has the first claim on Indian contilbutors to the endowment of research in tropical medicine, as here alone can it be utilized to the greatest advantage in the study of the diseases Indeed India might well appeal of hot climates rich Great Britain for substantial help in work of such Imperial importance

A Bombay scheme has also been put forward for Parel on the lines of the Calcutta School of Tropical Medicine, but without the inestimable advantage of the closest possible association with the premier Medical College Hospital of India. We venture to think that this would be a great mistake, and that Bombay would be far wiser to specialize in a different, out equally useful line, by organising a Tropical School of Hygiene to give the best possible training and a diploma in public health, and so enable the plans of the Government to provide whole-time health officers for all the large towns of India to be rapidly carried into effect. The Parel laboratory appears

to be admirably situated for such a badly wanted institution, as so much good work has already been done there in preventive medicine, especially in relation to plague, by the late Major Lamb, Surgeon-General Bannerman, Major Liston and others. A Bombay School of Tropical Hygiene, to train men for the whole of India, would be complimentary to the Calcutta School of Tropical Medicine, instead of duplicating it, and the two Institutions will allow of advance all along the line in both preventive and curative medicine, and place medical science in India on a par with that of the most advanced nations of the world

## Aurrent Topics

### SANITARY REORGANISATION IN BOMBAY

A GOVERNMENT Resolution appeared in the Bombay Gazette, dated 5th June, on the steps taken and to be taken for the appointment of Health Officers and Sanitary Inspectors in towns and The Bombay Government has municipalities – very liberally agreed to bear two-thirds of the expense of Health Officers and one-third in the case of Sanitary Inspectors The towns in Bombay Presidency are divided into three classes, class 1 towns are to have a Medical Officer of Health (first class), and one Sanitary Inspector for every 25,000 of the population, such towns are Ahmedabad, Surat and Poona In towns of the second class (such for example as Hyderabad Sind, Sukkui, Ahmednagai oi Bioachi, as Medical Officer of Health of the second class and one Sanitary Inspector for every 25,000 of the population Towns of the third class (such as Nasık, Satara, Dharwar, or Gadag), are not to have a Health Officer but to have one Samtary Inspector for every 25,000 inhabitants

The qualifications for these Health Officers are as follows —

Medical Officers of Health of the first class will be required to possess a registrable medical qualification and, for the present and until proper arrangements exist in India for post graduate study, a British diploma in public health. The question of the acceptance in lieu of the latter qualification of a diploma of Bachelor of Hygiene or of Poctor of Hygiene of the University of Bonday is under consideration.

Bombay is under consideration

"In the case of Health Officers of the second class the possession of a degree of MB, BS, will be a necessary qualification, and selected candidates will be required to undergo a nine months' course in hygiene and a three months' course in epidemiology according to the syllabus approved in Government Resolution No 2161, dated the 15th March 1913

"Sanitary Inspectors including those already in

"Sanitary Inspectors including those already in municipal employ, will be required to obtain a certificate of sanitation after attendance at the sanitary surveyors' class held in Bombay"

The minimum rates of pay are given below and it remains to be seen what class of man will be got for the first class Health Officers, with a registrable qualification and a British DPH, the more so as all Health Officers are rightly and necessarily debarred from engaging in private

The rates of pay fixed for Health Officers and

Sanitary Inspectors are as follows -

### Health Officers

Rs300-20-500

First class Second class

150-10-300

(Subject to enhancement in special cases )

#### Sanitary Inspectors

Rs

Sanitary Inspectors in sole charge 75 20 Sanitary Inspectors under a Health Officer 50

(These rates represent the minimum admissible under the

We are glad to see that arrangements have heen made to give some security of tenure to these officers, and in all case of appointment, punishment or dismissal, the sanction of the Divisional Commissioner is necessiry

There is added to this resolution a synopsis of the course of study to be required of Health Officers of the second class, who have not yet got a DPH It is to consist of nine months' attendance at classes and practical demonstrations in the subjects prescribed for Simtary Surveyors in Bombay, and in addition instruction in the examination of food-stuff, adulterations, care of cattle and management of dames and milkshops and collection of water for analysis there is prescribed an excellent three months' course in epidemology at Parel

## GRANT MEDICAL COLLEGE, BOMBAY

THE Report for 1912-13 was published in On the retirement of Lt-Col C H Meyer, MD, IMS, Lt-('ol A Street, FROS, was appointed Principal sub pro tem, in addition to his duties as Professor of Surgery, Major Gordon Tucker was confirmed as Professor of Pathology and appointed to act as Professor of Medicine, Capt R M Carter acted as Professor of Pathology, and Capt A J V Betts as

The total number of students on the roll was 514, viz, 69 Europeans, etc., 309 Hindus, 124 Pusis, 17 Mahomedans and 1 Jew There were

24 military medical pupils also

For the final examination for degree of MB., BS in part i, there were 47 candidates and 28 presed, and for part ii, there were 68 candidites and 36 passed. It is satisfactory to see that a high standard is maintained for this We also note that for the MD examinution of four candidates in the three branches Medicine, Midwisery and Sanitary Science only one passed In the degree of Batchelor of Hygiene, pts 1 and 2 there were 7 candidates

and 5 passed, for the M.S. degree the single candidate passed We quote general remarks from the Report -

"The New Physiological School Buildings elected at an estimated cost of Rs 194,900 have been brought into use since February 1913, a sum of Rs 71,000 was expended on its equipment and fittings during the year Its equipment is not yet complete, and a further sum for it will be required during the next year

"The question of providing a new building for the Bacteriological Laboratory is under consideration at present, and pending the erection of the building the Laboratory will have to remain in the old chronic ward of the J J Hospital as at present

'The plot of ground on the Kennedy sea face, kindly allotted by the Government, as play ground for students of this College, has been taken into possession by the Honorary Secretary of the Gymkhana It is proposed to construct a suitable Gymkhana Pavilion there, as soon as funds hecome available

"Rs 500 have been invested into Government Securities out of the donation of Rs 5,000 made by the Trustees of the N J Wadia Fund, for buying cupboards or book cases in time to come, and the greater portion of the balance was spent on books for the College Libiary during the year, there still remains a balance of Rs 266 to be spent on books which will be availed of during the following year

"Major E F Goldon Tucker, IME, Professor of Pathology, has prepared a Second Supplementary Catalogue of specimens in the Pathological Museum,

which is now ready for printing

'Under the Revised University Regulations, failed students are required to put in Collegiate attendance, like a regular student before re-appearing at the First Preliminary Scientific and 2nd or Intermediate M B B S Examinations, and in the case of the final examination, such students are required to attend practical work in the subjects of the examinations These regulations are made applicable for the first time, to the examination to be held from September 1913, and It is very important that students should note them in time, otherwise they will be disappointed

at not being allowed to reappear for the examinations
"Lieut Colonel C H L Meyer, I Ms, having retired from the service, the College loses its Principal much to the regret of the students as well as the whole College Staff Lietu-Colonel L F Childe being on furlough on medical certificate for one year, the Principalship was sub pro tem awarded to the undersigned (Lt-Col. A Street, IMS)

"Di N F Surveyor has continued his General Research Work in the F D Petit Laboratory Dr R Row has

also been carrying on his work there

"Mr M B Soparkar, MD, was appointed Lord Reay, Lecturer for the Winter Session The subject announced for the lecture was "Pathology," and he selected "Leishmaniasis" with special reference to Kala-Azar, and Oriental sore, as a sub-division of that subject, and treated it ably and satisfactorily in a series of two lectures, accompanied by magic lantern

## DENGUE IN PALESTINE

In an interesting article in the Journal of Hygiene (Vol 13, No 1, April 1913), Di E W G Masterman gives an account of some tropical diseases of Palestine, and after describing the very exceeding prevalence of malaria in Jerusalem he gives an account of an epidemic of dengue which visited Syria in 1912, which as the disease still persists in India may be of interest to our The disease spread all over Syria in that year and reached Jerusalem in September,

some of the Bedom tribes suffering severely characteristics may be briefly here synopsised Onset sudden, though not always so, an ague like chill often mentioned in the beginning, headache pains in loins and over spleen and liver, pain in occiput and back of neck Epigastiic distress very marked, vomiting very common, tongue Obstinate constipation common, sometimes diarrhea, often the result of purgatives taken Pyrexial stage from three days in mildest to eight or ten in the severe, in litter cases temperatures of 104-105° F are found Relapse and recrudescence of pyrexia are characteristic, and profuse perspirations at the close Epistaxis is very common, abortions said to be common, after the fall of the fever the pains get less but often persist Two forms of rish have been noticed, severe congestion of the skin of face and a morbiliform or scarl itiniform which uppear at the end of the acute stage. The onset and disappearance of rash is frequently accompanied by an intolerable itching, Nerve prostration and neurilgia common during Relapses common and apparently little mainty is conferred. The epidemic or no immanity is conferred simply dies out in the cool weather Children under 5 years were seldom attacked

Dengue of Abu Rikab has been more or less endemic upon the Syrian coast for half a century past and it is a frequent visitor at Jaffa and coast It was severely epidemic in 1909; August till November are its usual months Marked leucopenia was usually present on blood examination

Diagnosis has to be made from influenza, and from "Three-day fever"

Nothing certain is known of the organism, the blood is infective even after filtration through a Berkefeld filter The writer does not believe in the pathogenity of Di Graham's "bodies," but he thinks a mosquito is the carrier—"all experience here points against infection by mere propinguity"

### BERIBERI PREVENTION IN SIAM

DR H CAMPBELL HIGHER, MD, P M O of Health, Bangkok, Siam, has presented a useful and interesting report on investigations made on Beil-beri by the Medical Officers of the Health Department of Siam

It is well known that the advocacy of Braddon had led to the use of unpolished rice, and it had been found successful in Siam before the wellknown work of Fraser and Stanton had estab-

lished this theory

We need not follow Dr Campbell Highet in his account of the experiments on the use of polished nice and other fices in the asylum, the most important point he has established is that while it is necessary to avoid the highly polished rice of the steam mills it is possible to make what is here called an "under milled nice" in steam mills, which is equally good and equally beil-beil preventing to undermilled rice prepared by hand

This will go a long way to appease rice millers who were up in arms against legislation which, in the interests of the peoples' health, was certainly and necessarily directed against the highly milled and highly polished rice produced in the mills

A good deal of D1 C Highet's report is taken up with a natural but unnecessary rehabilitation of Siam iice, because Fraser and Stanton in then report had mentioned as being inferior in fat and more harmful in effect certain highly polished samples they had examined and called Siam As a matter of fact analysis shows that Siam rice has practically as high a proteid and tat content as any other and equally as high a percentage of P<sub>2</sub> O<sub>3</sub>. Siam rice therefore when sufficiently undermilled is just as potent in preventing bei i-bei i, as it is potent in producing bei i-bei when it is highly polished, as is any other Eastern

We quote, as follows, Di Campbell Highet's conclusions —

From the data supplied in the foregoing pages, one amply justified in coming to the following conclusions —

"1 That berr berr as a cause of sickness and death, not only in Bangkok, but also in other parts of Siam, is a disease of such importance as to call for the serious attention of His Majesty's Government

That we are convinced of the correctness as a working basis of the theory that berr is associated with the continued consumption of white (polished) rice as a staple diet in man, provided certain other sup plemental and necessary ingredients of diet are consumed in insufficient quantity

That we agree with other investigators that the amount of phosphorus in a given rice is a good indicator of its beil beil producing properties, and that a lice which contains less than 0.4% of phosphorus pentoxide is likely to cause beri beil under the conditions described

in conclusion 2 That Siam rice compares most favourably with the rice of neighbouring countries, and when not milled beyond the standard of phosphorus pentoxide already mentioned is as excellent a prophylactic against beriberras the rice of any other country

That a beni-ben preventing nice can readily be prepared from Siam padienther by hand mill, or steam

mill, and that the padi need not be previously parboiled "6 That the incubation period of beri-beri in Siam

18 roughly sixty days
"7 That there is a definite seasonal incidence of the disease in Bangkok, with a maximum liee during Sep tember and two secondary uses one in March and one in May, and that the cause of these variations is not

apparent
"8 That the deaths from ben ben are mostly amongst
young adult males, 82 6% being at ages ranging from

16 to 45 years, but why is not yet known
"9 That ben ben costs the Government at least sixty thousand ticals per annum, and that a modest estimate gives for the past eleven years a total financial loss of one million ticals

That our knowledge of the ultimate substance in unpolished rice which pievents beri beri is still insufficient to guide legislators in framing an Anti beri

beri Law. "11. That the rice millers of Siam can await any such legisla tion without fear of damage to their trade

"12 That although legislation against white polished rice be somewhat premature, much good might be done the use of this kind of rice were prohibited in all Government Services and Institutions, and only undermilled rice containing at least 04% of phosphoius

pentoxide were permitted

"This is already done in Bangkok and Muang Jails, in the Police School, the Police Hospital, the Asylum for the Insane, the Hospital for Infectious Diseases, and in the Reformatory and Police Station at Koh Si Chang Practically the whole of the Provincial Gendarmery subsists upon undermilled lice with almost total absence of ben-ben amongst nearly 9,000 men"

### CLIMATIC BUBO

THE China Medical Journal (May 1913), contains a useful article by Dr G D Gray, of the British Legation, Pekin, on climatic bubo, a subject which was considerably discussed in India some 17 years ago at the time plague

became recognised in this country

Dr W J Simpson claimed to have found an organism resembling b. pestis in some cases in the Shropshire Regiment which had recently arrived in Calcutta for Hongkong, and it is known that Di Cantlie endeavoured to prove that "climatic bubo" was a form of pestis minor and more recently Luzzatti has gone one better and named it parapertis Dr Caddy described non-venereal-non-plague buboes in Calcutta in these columns, and most medical men are agreed that there is such a disease as an entity by itself and in this view Castellani and Chalmers agree (New Ed Tropic Diseases, p 1435) commonly met among sailors and stokers on steamships, and Di Gray has never heard of a case among women

Various micro-organisms have been described, but the ætiology of the disease is still obscure, the most recent theory we have seen is that of G Rost, [Archiv fur Schiff-und-Tropen Hygiene,

v Lancet 7-12-1912] who says-

"No visible cause can be assigned for the disease, cases occur for which no micro organism whatever can be brought to view. As to causation it only occurs in the groin through which pass the lymphatics from the genital organs It does not appear in children or in married people, or in those people aboard ship who are abstinent, and he concludes it is due to a micro organism found on the vaginal mucosa of negro women"

THE FIRST AID PACKET OF THE AMERICAN ARMY

THE following description of the First-Aid Packet supplied to all officers and men on active service in the American Aimy is taken from a useful article by Dr G M Bleck of Chicigo published in the American Journal of Surgery (May, 1913)

"Tamponade and gauze pressure do not differ from the treatment of accidental wound in peace surgery For this purpose officers and men are provided with indicidual first and packets which ment attention

"A similar one is issued by the Navy and is also obtainable from the First Aid Dept American Red Cross It is a hermetically sealed tin case, 4 inches Cross It is a hermetically sealed tin case, 4 inches (102 centimeters) by 2½ inches (58 centimeters) and less than an inch thick. It is easily opened by pulling on the ring. This packet contains two "wound bandages," properly folded and packed in oiled, impermeable paper. A smaller package contains 2 sterile safety pins. Each dressing bandage is 3½ inches.

(9 cm) wide and 21 yards (2 meters 6 cm) long the centre of this bandage is a square, thick pad of 32 inches By unloosening a simple thread the pad can be made to measure 3½ by 7 inches"

The following directions accompany each packet (on a

slip of paper, inside the container)

"(1) If there is only one wound, carefully remove the paper from one of the two packages without un folding the compress or bandage and hold by grasping the outside rolls of bandage between the thumb and

fingers "When ready to dress wound, open compress by pulling on the two rolls, being careful not to touch the inside of the compress with fingers or anything else Still holding one roll of the bandage in each hand, apply the compress to the wound, then wrap the bandage around the limb of part and tie the ends together of fasten with safety pins. The second compress and bandage may be applied over the first or it may be used for a sling if the aim is wounded

or to bind both legs together if one is injured

"(2) If there are two wounds opposite each other, apply to one wound a compress without unrolling the bandage, and hold it in place by the bandage of the

compress used to cover the other wound

"(3) If there are two wounds not opposite each other,

tie a compress over each

"(4) If the wound is too large to be covered by the compress, find and break the stitch holding the compress together unfold it and apply as directed above "The first aid packet is ideal The models used by

European and the Japanese armies are not as good as ours. For wounds from cannon shells, which, as will be seen later, may tear off one or more extremities or extensive portions of the human body, larger sized dressings are issued This will apply to troops garrisoning for tifications and manning battleships

In spite of the simplicity of the directions accompanying the first aid packets, it is of course best to instruct all officers and men in their use before the beginning of a campaign After a man is wounded he is too excited or too helpless to pay much attention to printed matter. By training in time of quiet, the packet will be applied automatically, so to speak, when it becomes actually needed"

## ANKYLOSTOME INFECTION IN INDIA

It is now established that ankylostome infection in India is due to three allied but different parasites, viz, Annylostoma Duodenale, Necator Americanus and Ankylostoma Ceylanicum as recently pointed out by Major Clayton Lane, IMS, in these columns (June, 1913)

The ever useful Tropical Diseases Bulletin (Vol I, No 12, May 15, 1913), gives a résume of

recent literature on this subject

Di L F Johnson (Tevas State Jl of Med. March, 1913), investigated 241 cases of what he calls hookworm disease basing his diagnosis apparently of the 'disease" on the discovery of the ova in the fæces Peifei (Archiv f Schiffs u Trop Hyg, October, 1912), describes his experiments as to how the parasite enters the human He concludes that earth or mud eating is not a factor in producing infection in a few cases the larvæ may be swallowed in drinking water but "the usual way of infection is undoubtedly by way of the skin, the laive being either brushed off the damp grasses or taken up from the infected soil by the feet." It is however, now admitted that Looss' view is correct, and that the larvæ enter the skin through the han follicles

giving rise to such eluptions as ground-itch

(panighao) \*

The distribution of these parasites is very widespread in India and the tropics generally A recent paper by P Milloos shows the prevalence of helminths in Indo-China In 1912 out of 1012 stools examined in 572 infected persons, 57 per cent of persons were infected with the parasites

Schuffner and Vervoort (Munch Med Wochen, Jan 1913) have experimented with a volatile oil prepared from Chenopodium antheliminaticum (Official in U.S. A. Pharmacopæia). It is said to be useful in 16-minim doses, but it is expensive

Senior gride S-A-Surgeon S M Das, of Kurseong, writes to point out an error on p 224 of Captain Juke's article in June issue of the I M G The Dalar Lama did not visit Kurseong, and cases of spirillar fever have not been found in the town of Kurseong In the article the word Kurseong was a slip for Kalimpong, but a tea garden, about 8 miles from Kurseong, has had a few cases

M1 T Southwell, FLS, FZS, Deputy Director of Fisheries in Bengal, has a valuable article on the parasites of fish in Records of Indian Museum (Vol IX, p 12, June 1913) Fortunately M1 Southwell is able to tell us that "as far as we know there are no fish parasites capable of infecting man". In Europe the larva of the Bothriocephalus latus occurs in the Pike and is transmitted from this host to man. The damage done by this parasitism is to the fish themselves and in tanks the effects appear to be cumulative and the infected fish are thin, emacrated and lacking in vitality

An editorial article (J A M Assoc, May 3) it is stated that 300,000 lb of morphine is made from opium in the United States and that 80 percent of this is used illegitimately, ie, by victims of the morphine habit. I histeen years ago the U S A Government began to legislate against cocain, yet it is "now reliably estimated that its illegitimate use exceeds 150,000 ounces every year."

## Reviews.

By W M HAFFKINE, Bacteriologist with the Government of India Calcutta and London, 1913 Thacker, Spink & Co

The present note, writes Dr Haffkine, has been written in connection with certain official correspondence regarding vaccination against

cholera and the preparation of a devitalised form of anti-cholera vaccine. It is divided into three parts, viz, the preparation of an anti-cholera vaccine, immunization of man against cholera and the anti-cholera vaccine after its devitalisation. It is pointed out that such is the variability of the germ of cholera that it is essential to first select the praticular variety of the germ which is to be selected as "authenic and appropriate". We make the following extracts—

The formula given by me in 1892, in the transactions of the Paris Biological Society, for obtaining a cholera virus of staple properties, contains the following three clauses —

- 1 The series of cultivations must be begun by giving the first animal a superlethal dose of virus, so as to obtain a rapid effect rud to find, upon the death of that animal, in the fluid exudating into the peritoneal cavity, a remnant of resistant germs surviving the destruction of others
- 2 On the death of the first and of each succeeding animal, the serous fluid found in the peritoneum (or else a culture of cholera germs made from that fluid) must be aerated for a few hours, before being injected into the peritoneum of another animal, and, lastly,
- 3 For this latter injection, an animal of queater bodily weight than the previous one must be taken, if the amount of serous fluid found in the peritoneum is small, and vice versa

I ascertained at the time that this formula was applicable not to the cholera germ alone, but also to others, in particu'ar to the bacillus of typhoid fever

"GENERAL RESULTS OF THE ABOVE STUDIES"

The facts of general significance revealed in the course of the studies detailed above were the follow

(1) "active" immunization, realised by means of a purely bacterial vaccine, as contrasted with immunization by means of lymph and tissue of another, previously moculated, animal, was effective in application to man,

(2) such immunization could be carried out with safety during the progress of acute and fatal outbreaks, as was, eg, the outbreak in the Durbhanga Jail, and the febrile and other reaction caused by the injection of the vaccine, in the doses used by us, did not increase the susceptibility to infection among the inoculated and did not aggravate the disease when an inoculation happened to become infected during the progress of that reaction or during the days immediately following,

(3) the development of a rapidly incubating disease, such as cholera could be mitigated or entirely averted by applying the same form of immunication to in dividuals previously infected, in whom the disease was already in the incubation stage. This late fact, theoretically of a much respect to the others. cally of a much more paradoxical nature than the others (vide p 92), received in the next two years (1897 and 1898) extensive confirmation in the results of the anti plague moculation, which was planned upon the results of the inoculation against cholers, and the principle thus established was adopted for guidance in therapeutic practice and applied in treating diseases actually practice and applied in treating diseases actually developed, first tentatively, by some of my co workers in India, and subsequently by Sir Almroth E Wright who learned it during his visit to India as member of the Plague Commission of 1898-1901 It must be mentioned however, that, at the time, the Commission did not see their way clear to acquiesce in the validity of the discovery and in their official report pronounced themselves against the application of inoculation in the incubation stage of plague Inoculation as a remedy against a condition of infection developed beyond the incubation stage has since been extensively tried,

<sup>\*</sup>The connection of panighao with ankylostome infection was first clearly pointed out by Di C A Bentley, in Assam It is strange that credit is not given to him for this discovery even in the most recent books on this subject, nor for his use of Beta naphthol—ED, I M G

and its effects and degree of actual utility in such

circumstances are studied in many diseases

Another feature of anti-cholera moculation, which was taken into account in devising the plan of the inoculation against plague, was that, while the incidence of cases of cholera and—parallel with this—the incidence of deaths from that disease were powerfully in fluenced by the inoculation, no effect of any constancy was observed upon the recovery rate of the inoculated attacked, a result which, unfortunately, went against the expectation suggested by a priori consideration of the matter (vide p 35) In devising the plan of inoculation against plague, endeavours were made to affect favour ably also recoverable rate, and, apparently in answer to the measures adopted, the result proved successful

Subsequent work by various experimenters and by myself regarding the immunization of man against cholera, typhoid and plague was a continuation and

outcome of the studies of 1890 6

### "GENERAL SUMMARY"

On pages 37-72 of this Note a description has been given of the experiments by means of which the possibility of immunizing man against cholera has been demonstrated in the studies in India with live vaccine "II" The nature and the mode of preparation of the

vaccine are described on pp. 25 31

A number of observers have concluded from this result, and by inference from observations on animals and on human blood serum, that the same vaccine in a devitalized condition, as used tentatively in the author's evi eriments of 1892 93, and again, on a somewhat larger scale, in 1900, was also likely to be useful (pp 81, 88) The further study of that preparation in India has been delayed by the advent of the plague, but the above expectations are justifiable. An investigation on the subject, made in the midst of actual outbreaks of cholera, under conditions of accurate scientific research following the lines which have been described in the preceding pages, is desirable, in view of the advantages which a devitalized prophylactic offers in practical application, and of the great difficulties in the way of using live vaccine on an extensive scale, under the conditions prevailing in many parts of the country

Just as it was important to obtain first a positive result on the question of cholera immunization in general, and to use, in investigating that matter, the most reliable vaccine preparation, so it is important to avoid in the beginning the possibility of failure in the study of the vaccine in a devitalized form leason it is preferable at present to use the devitalized vaccine in its entirety, as against extractions of other derivations of it. The facilities of manufacture in the case of the entire preparation are also of considerable

In devitalizing vaccine "II" it is essential to employ only the most delicate physical and chemical processes Two forms of that vaccine in devitalized condition commend themselves to the author from first investi-

One, prepared by prolonged cultivation in a fluid

medium and devitalized by heat and carbolic acid, and another, prepared by cultivation on a solid medium and devitalized, as soon as developed, by a solution of the same antiseptic compound

The study of the protection derived from the employment, separately, of these two forms of vaccine in various doses should afford information as to the direction in which the plan will require to be modified for further

Our Outsides -B, W T Fraulf, ND John Wright & Sons, Ld, 1913 Bustol

This is a quaint book At first we did not know what to make of it, but as one reads it, one is bound to be fascinated. It is a faringo of extracts, quotations, and tolklore, and deals with the base

all soits of subjects physiognomy, foreheads, noses, eyes, ears, clothes, handshaking, dwarfs, adipose tissue, statuie, diffidence, "the sphinface" second childhood and the complexion is, as we say, certainly interesting Di Fermie is a veteran of the profession, he was qualified in 1854, and we have read with pleasure his other volumes, "Herbal Simples," "Meals Medicinal," and "Precious Stones '

### SPECIAL ARTICLES

I

SOME NOTES ON SURGICAL EXPE-RIENCE IN THE TURCO-BALKAN WAR.

On November 3rd, 1912, the British Red Cross Society sent out to Bulgaria two Units to assist in nursing the wounded

The Units for Turkey, Servia and Montenegro had already started

Major Birrell, RAMC, was in command of No I Unit, and Major Corre Hudson, IMS, of The former—as senior officer—was No 2 Unit Director of the combined Units

Each Unit had 3 Surgeons, 4 Diessers and 13 Rank and File, who acted as nursing and general

The other Surgeons in No 1 Unit were Captain Byam, RAMC, and Di Clarke, and of No 2 Unit Di O'Leary and Di Pasley On our arrival at Sofia we found a great lack of doctors, nearly all having gone to the front, and we were consequently called upon to attend cases about the city and kept quite busy whilst remaining there

Orders, however, were soon given for us to proceed nearer the front, and we railed to Stara Zagara

En route we were presented at Phillipopolis to Queen Eleanora, and were then told we were to go to Kirkillisse (Lozengiad)

At Jambouli we unloaded the baggage from

the train and placed it in bullock carts

We had the honour of dining with His Majesty King Ferdinand before we proceeded by road to march to Kirkillisse

The roads were extremely badly cut up by the Artillery and heavy waggons that had travelled They were very heavy going, and a sea of mud In many parts there was no appearance of a road at all, merely a track

On reaching Knkillisse we found there was no Hospital for us to go to and it was some days before a Turkish Barrack was given us to convert

On the journey we had met many convoys of wounded They were in bullock carts-2, 3 or 4 m each and had no visible attendants, and no medical officer in charge transferred from one Hospital to another nearer They were being

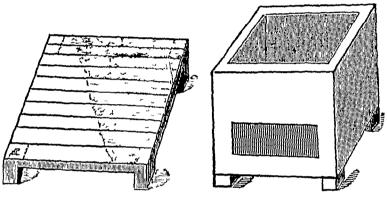
The Bairack given us was indescribably duity. The whole of the top floor and stancases had been used as a latrine, and the top floor was filled with old Bairack furniture, broken cartridge boxes, rubbish and filth

It took 5 days to clean and whitewash, everyone working hard, cleaning materials such as soap, brushes, brooms, flannels etc, we bought locally

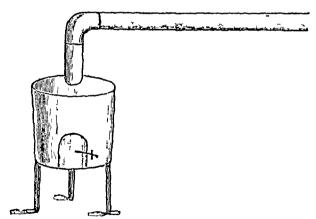
There were about 200 bedsteads, with non frames and wooden laths which when cleaned did well for the patients

Mattresses and pillows we made out of canvas, and packed with straw procured from surrounding villages

A simple incinerator was made out of stones, mud and non bars which did well to burn all the Hospital rubbish and dressings in The illustrations shows the type



For waiming the wards a locally made non stove was used which had a chimney, which went a long distance in the ward before being led through the wall and outside, so —



Wood was the fuel used

The cook house was for most of the time in the open, protected merely by a wind screen Congo stoves were used

Water had to be carted 2 miles in a bairel by

bullock cart

The wards were arranged as follows --

Ground floor

Ground floor

Ground floor

Ground floor

Surgical Dressing room
3 large wards
1 small ward

Operating 100m
Ward Litchen
3 large wards
2 small wards
Quarter master's stores and food

The total capacity of the Hospital being 138 with plenty of bed space but for 200 it was rather crowded

As regards the operating room, after we had thoroughly cleaned it, we painted all the woodwork white, and then placed into it a shelf alminah with a glass front also painted white which was used for instruments and dressings

The operating table we had brought with us and so also 2 copper boilers, 1 Schimmel Busch sterilizer, white enamel basins, jugs and trays. We added to the furniture by covering two large tables with the zinc obtained from old cartridge boxes, and these did well as side tables for lotions, dishes, bowls, etc. For instruments we had 2 modern army instrument cases with some additional instruments, such as bowel clamps.

The above with diessings, sutures, rubber gloves, caps, gowns and masks and chloroform in Burroughs and Wellcomes glass phials completed our equipment for the Theatre. The floor we covered with linoleum, and bought zinc foot tubs to catch fluid, dirty diessings, etc.

Mr Cox—the X-ray operator—had meantime prepared his apparatus, and ran through a wire into the Theatre so as to give us electric light there

Five days from the commencement of cleaning the Barracks the first batch of wounded arrived and filled the Hospital

They came in the middle of the night. There was no medical officer in charge, or any trained orderlies. There was no nominal roll of the men, nor of their injuries. The men were half frozen, hungry and had not been dressed for anything up to ten days.

All the wounds were septic. The men's clothes were full of lice. Compound fractures had no splints applied, many of these cases were compound fractures of the thigh in a highly septic condition. They had travelled by bullock cart over a bumpy road, and as they had had no one to attend to them and help them to get out for purposes of nature, their condition was extremely bad.

As regards diessings, they had been diessed with cyanide gauze and wool and bandages, but not first field diessings. Only a few regiments had had these

The wounds were tightly plugged with gauze, and in consequence blood and pus had tracked up and down the thigh or leg very extensively, stripping muscle off the bone and bagging wherever it could On removal of the plug, purpoured out like water from a tap.

We had an opportunity of applying ourselves an English first field dressing to a case in which the bullet entered the left testicle, passed under the pubic aich and out at the left buttock behind This case healed by first intention and was fit for duty in 14 days

An almost exactly similar case plugged with gauze and septic came to us later, and this case had to have 2 operations and was sent to the base to convalescence  $2\frac{1}{2}$  months later

One must remember, however, that the number of medical officers at the front was limited and could not have been enough to cope with the large number of wounded, and certainly not enough to spare any for convoy duty, and as there were—except in a few regiments—no first field diessings, the cases had to await their turn, and so perhaps this will account for the septic condition of the wounds

We noted that there were few head, abdominal and chest wounds compared to wounds of the extremities and face To account for this one could give several reasons

()ne is that in the shallow trenches hastily thrown up the legs, face and arms were the parts most exposed, so -



Secondly -The severer cases died, not being able to get sufficient attention

Thu dly —The severer cases were kept at the front and not sent back to the nearest Hospital, and only later sent back and then right to the base, missing the intervening Hospitals

Whatever the reason, leg cases predominated both in bullet and shiapnel wounds We sau no bayonet wounds Shiapnel gave the graver The bullet was very conical and made wounds



a small entrance and exit wound Few cases showed any explosive effect unless bone had been

The most striking feature was the large amount of pus which had burrowed in all directions

The following were the types of surgical "ounds treated-

Compound fractures of the femur " " tibia Wounds of the face n n fibula " " hands 31 n feet

A lesser number of -Lung wounds Livei Pericai dium (one) Pleura Skull (one) Intestine (one)

The following operations were performed—

- Removal of comminuted bone
- Extraction of hullets 2
- 3 Dramage of pus
- 4 Amputations
- Arteno venous aneurysm (one)
- Perforated intestine (sewing up)
- 7 Trephining (one)
- Skin grafting

Of these Nos 1, 2 and 3 were the operations. mostly done

Conservative surgery was persevered with all through, and it was most astonishing and gratifying to see how well even the woist cases seemed to do with free drainage, removal of comminuted bone, and extraction of the bullet or shiapnel

All the fractured femules, with one exception. did well The exception was from the first a hopeless case in which amputation was strongly unged, but unfortunately obstinately refused The fractured femurs were put up on Hodgen's or Liston's splints—the former manufactured in some cases from iron mosquito poles and rope, and acted most successfully

One case had a bullet entering the left Lyomatic fossa, traversing the left antrum and then through the nose and out at the night ınfra-orbital foramen Placed by a window one could see through this man's face The wound, however, healed up successfully in a very short

In another case a bullet penetrated the pencardium, lung and liver. This man lived fortnight, but then died of hæmonhage from the liver We found even big gaps in bone budged over satisfactorily and union occurred with the help of careful dressing and clean-Iodine was used for lotion, and for sterilizing the hands and skin, a solution was used as spirit was scalce watery extremely well and was most portable It did this as our antiseptic we were able to overcome the septic condition of the wounds, which, once clean, healed quickly, and so we were able to pass on the first batch of wounded and take in others from time to time

The main points of interest were-

The use of a proper first field diessing and the disadvantage the wounded suffer from when having none

The bad effects of plugging wounds

The remarkable way wounds yielded to conservative surgery however bad they appeared

The value of iodine solution as sole anti-4 septic

The fact that compound septic fractures of the femu became healthy and united even after a journey of ten days or more in which they had been bumped about unsplinted in a springless bullock cart

CORRIE HUDSON, DSO, FRCS,

MAJOR, IMS

#### II

### THE MADRAS GENERAL HOSPITAL

As usual this valuable report is printed and contains much of interest to our readers, we shall therefore make liberal extracts from it number of beds is 500, practically equally divided between medical and surgical

Major C G Webster, IMS, who submits the report, comments on the great need for a special hospital for tubercular diseases and the bad effects of treating such cases or enteric fever cases in general wards, and these views all medical men The number of "malana" cases will endorse treated has almost doubled in 1912, but here the question of diagnosis comes as this department is so understaffed that proper blood examinations The number of students was cannot be made 204, and 15 sub-assistant surgeons attended for a post-collegiate course

We shall now make extracts from the medical officers' reports on the work in the various wards

On the use of Emetin (a là L Rogers) we may quote a few remarks Major F F Elwes. CIE, writes -

"Hepatitis and Emetine - Major Rogers' method of subcutaneous injection of emetine was used with great success in two cases of acute hepatitis In one of these cases, the fever which ranged from 100° to 103° was said to have existed for 18 days when the treatment was commenced Emetine hydrochloride & grain was injected on three successive days, the temperature fell and did not rise above normal from the third day after the last

### Major Webster writes —

"Amabic Dysentery and Emetine Hydrochloride -Very many cases of amœbic dysentery were treated by sub cutaneous injections of emetine hydrochloride, and were rapidly cured. The doses used were  $\frac{1}{3}$  grain in some cases, and in others  $\frac{1}{2}$  grain. No vomiting or depression ensued in any case with the use of this drug of these cases the cures obtained were remarkable indeed The rapidity with which marked improvement follows an injection of \( \frac{1}{2} \) grain of emetine hydrocloride is of great diagnostic importance, for cases of bacıllary dysentery and other non-amæbic causes for the presence of blood and mucus in the stools do not appear to be benefited by the drug"

### Captain Ingiam, MD, writes -

"Dysentery —One hundred and seven cases of dysentery were treated in all, of whom nine died In the latter part of the year fresh stools were specially examined for amœbæ My experience in this respect is in agree ment with Major Rogers', that if actively motile amorbee

are present in the fresh stools, amobic dysentery is almost invariably present Sometimes amobe are not found on the first examination, but can be found on examination of another stool, very rarely are they absent in two stools, but yet present in a third One case of, I believe, tubercular ulceration of the intestines showed some amæbe in the stools, similar observation previously have been made by other observers

The class of cases in this hospital are very larely so acute or severe as those described by Major Rogers in his papers. In this hospital many of them are chronic or sub-acute cases, with a few acute cases mainly among

the City Police"

"Emetine Hydrochloride - Thirteen cases of amorbic dysentery were treated with injections of emetine by drochloride partly prepared for me by the Chemical Examiner and partly prepared by the Professor of Materia Medica The treatment was in every case successful, sometimes alone, sometimes in combination with laxatives and enemata

I have used emetine injections also in the treatment of Hepatitis, and I experimented with it in Kala azar and Cirrhosis of liver 1 now give two grains by subcutaneous injection and once only have I found this to be followed by vomiting The very gratifying freedom of this method of treatment from evil effects renders it possible to use it early in all cases of doubtful diagnosis and I have found it now possible to cure

Hepatitis very rapidly in this way

One obscure case I desire to record here —A.M., male, aged 34, admitted on August 20th with a history of a month's fever On admission he had hectic fever of an irregular type, some jaundice and pain in the right side of the chest, enlargement of the spleen and liver Various methods of treatment were tried up to the 12th September without any success A daily injection of emetine hydrochloride I grain was given for seven days, with the result that his fever gradually declined and the jaundice cleared up completely I saw him in the middle of October and he then told me that he was quite well

Major Webster quotes the following case of

"Urticaria — An Eurasian named J P L., aged 41 years, resident of Pursewalkam, was admitted to the wards, with fever and generalised rashes all over his body His temperature soon after admission into the ward was 978° F and later on rose up to 103° F He gave a history of lapid onset of these lashes accompanied by intolerable itching all over the body His blood was taken and examined and found to contain schizonts and gametocytes of benign tertian, malarial parasite His temperature came down to normal the next morning and all his rashes disappeared with his fall of temperature When next moining his temperature went up again to 102°F the lashes reappeared concurrently. This was 102° F the rashes reappeared concurrently. This was then a case of unticaria perstans, associated with benign tertian malarial fever."

Pulmonary Tuberculosis - Cure by Pacillary Emulsion An Indian Christian, aged 20, resident of Pudupet, was admitted to the wards on 2nd July 1912 with a history of fever and slight cough and expectoration, lasting for eight months prior to admission. Physical examination on date of admission showed slight diminution of movement on the right side of chest, slight depression of the right infra-clavicular fossa, and diminished resonance on percussion in right apex (front). Mi croscopic examination of sputum did not show any theorete beath. tubercle bacilli The case was however suspected to be one of T P localised at the light apex and subcutaneous injections of old tuberculin were given in doses and on dates specified below

> 2/10 mg on 6th July 1912, 1 mg on 9th July 1912, 5 mg on 13th July 1912, and 10 mg on 18th July 1912.

On 19th July 1912 a few moist rales were heard in the right apea and the sputum, repeated examination of which up to now did not show any bacilli, showed on this acceptant the presence of tubercle bacilli. The diagnosis occasion the presence of tubercle bacilli having leen confirmed thus, injections of bacillary emulsion were given with a view to cure the patient The initial dose given was 120,000 mg on 4th August The dose was gradually mereased on each successive occasion with due care and precision dose the patient had was 1 mg on 13th December 1912 Considerable improvement was noticed during the progress of the injections. Very careful search under the microscope did not reveal the presence of any tubercle bacıllı ın the sputum sınce 29th October 1912

The patient's weight on date of admission was 89lb and on date of discharge 103lb This patient has been

discharged, cured

### Major H Knkpatnick writes -

The death rate in cases of pulmonary tuberculosis has almost doubled itself as compared with that of last year Most of these cases are far advanced when they are admitted into the hospital and this year five cases were admitted moribund

Treatment with intravenous injection of iodoform has been tried in a few cases, improvement resulted occasionally, but patients insist on leaving hospital if they improve at all as they dislike the piick of the needle Several patients refused to continue injection, in spite of this I cannot believe that the treatment is at all painful or unpleasant beyond a slight taste of 10doform

The total number of malana cases treated is 70 as compared with 41 of last year This is an unmistakable evidence of the increase of malaria in Madras

Twenty cases of Kala azar have been treated (as against 16 of list year) with 3 deaths Two of these were admitted in a moribund condition. The death rate of Kala azar has slightly increased

Next to pulmonary tuberculosis come the valvular diseases of the heart, the diseases of the digestive system, and dysentery, all the three of which seem to have assumed an equal importance this year, both in the matter of admissions and in making up the mortality

Cases of Bright's disease have fallen from 54 last year to 35 this year. There is also a marked diminution in cases of intestinal parasites, 19 cases being treated as against 30 last year

Captain A C Ingiam MD, gives a account of the work in the Fourth Physician's wards -

He refers to two cases of heart trouble from excessive smoking of "American cigarettes"

A case of Ulcerative Granuloma of the Pudenda was treated with three "Sabouraud pastille doses of X Rays at intervals of about a fortnight" and parasites could no longer be found in smears from the soie

Rhinosporidium Kinealyi \*-Fresh material obtained from two cases under the First Surgeon was taken to Guindy and in conjunction with the Director of the King Institute attempts were made to inoculate monkers, gumer pigs and rabbits without success
Diabetes Mellitus -Two cases were treated with rectal

injections of dextrose according to Major F Foulkes's The treatment did not appear to me to have any effect at all on the progress of the disease

These wards for natives remain as the statistics of patients discharged, relieved and otherwise shows to a large extent a home for the decrepit and incurable, perhaps tubercular cases are the most difficult problem ,

many of them come to hospital in the last stages of the disease, quite incurable, owing to their duty habits they are a source of danger to them neighbours even in hospital, yet to refuse admission to hospital to them does not benefit the reputation of the hospital over, the dusty atmosphere of Madras is not over suit able for the treatment of cases of pulmonary tuberculosis Possibly in course of time the slow development of the Colonation Memorial Sanatoria, dispensaries, etc., may assist to solve this problem But this aid still looms in the far distance

The treatment of dysentery and enteric fever in the general wards is another problem which at present admits of no solution, as there are no facilities for isolation At least three cases acquired dysentery and one enteric fever in the year during their stay in the wards Fly infection appears to be responsible for other causes for these accidents

The Surgical records of this hospital are always We quote the following extracts of great interest from the works in the wards of Major T H Symons, IMS -

Writing for Fractures (2 cases) -(a) Patella -In this case the fracture was due to direct violence and there was a wide gap between the fragments Ordinary methods to secure union failed and operative measures were resorted to As the patient was old, the open method was not done Barker's operation was the one performed and kangaroo tendon was used The result was excellent

(b) Lower paw -This was a case where a patient had a fracture of the lower raw, resulting in non union after a period of nearly one year in spite of all sorts of treat ment The fragments were wired by silver wire and the patient was discharged with good result, having been able to eat solid food which he could not do before

Excusion of Love: Jaw (10 cases)—Three died and 1 Most of these cases were for epithelioma of iemaining The death in these cases were the lower jaw and cheek from Septic Pneumonia

Excision of Elbow (4 cases) -Three cuted and 1 is still in the ward

Major Amputations (14 cases) - Three remaining and Trephining (for Compound Comminuted the rest cured Fracture Skull) the only case undertaken died

Laminectomy (for Traumatic Paraplegia) (1 case) The patient was admitted into hospital eight days after a fall on the spine There was no control over micturition defecation and he had complete an esthesia and loss of motile power of both the lower limbs The last dorsal vertebra was found to be pressing on the cord and its lamine and spinous processes as well as those of the first lumbai were removed The patient died on the eleventh day after operation owing to sepais from the bladder spreading to the kidneys, he had very virulent cystitis on admission which did not improve in spite of The motor and sensory systems were not perceptibly improved by the operation, but the patient knew when his bladder and rectum were acting, a thing which he could not feel before operation.

Mastord Abscess (14 cases) — Thuteen cured and 1 re

Gastro-Jegunostomy (Posterior) was done in eight cases for dilated stomach due to pylonic stemosis and for gastric and duodenal ulcers One patient died, one did not improve by the operation and one is still remaining In all the rest the results were most satisfactory

Appendicectomy was done in two cases for Chronic Colitis The results were good in both, patients showing marked improvement Both these cases had been under medical treatment for a long time prior to operation without avail

Perforation of Intestine with local Peritonitis - The patient was admitted into medical wards on the 12th November 1912 and having been diagnosed to be a surgi cal case, it was decided to operate on him on the 13th November 1912 On examination per rectum a lump

Named by Minchin "R Kincalm" from a specimen shown in 1913, by Lieutenant Colonel F O'Kinealy, I Ws In Castellani and Chalmers' Tropical Medicine, new Ed, page 437 it is described and named R Section Wernicke 1903, as it was described by Dr Seeben in Buenos Ayres in 1905—Ed

was felt on the left side. There was bile-stained vomiting. Pulse 86 a minute. Patient looked very ill, abdomen rather rigid and tender between left interior superior spine and umbilicus. On opening the abdomen modorous fluid was found in the peritoneal cavity. Intestine was injected and distended. Recent adhesions were found, and on separating them a small perforation was detected and sewn up. As the distended gut could not be returned into the cavity, it was punctured and a pint of facial fluid led out. Two drainage tubes were put in. The after progress of the patient was uninterrupted and he was discharged cured on 31st. December 1912.

Colotomy (Iliac) was done in two cases of advanced Carcinoma Rectum. One patient died and the other was discharged from hospital after some time. The colotomy in the latter case was done to relieve the almost complete obstruction caused by the growth

Appendertomy (27 cases)—All cured In the majority of cases the appendix was removed during the quiescent

period

Appendicular Abscess — Ten were operated and drained Out of these one died. This patient showed no leucocytosis and there was very little attempt on the part of the peritoneum to isolate the infected organ.

#### Hernra -

Strangulated Inguinal Obstructed	13 2	савея. do	8 cured and 5 died Both died
Reducible Inguinal	59	do	57 cured and 2 died One of Uremia (chronic intestitial nephritis) and the other of tetanus
Ventral	3	do	All cured
Itteducible Inguinal	2	do	One died (a large herma in an old man Operation was done at the request of the patient who never recovered from the shock and died the same evening)

Hepatic Abscess (18 cases)—4 died Two of the cases that died had multiple abscesses, one had advanced tuberculosis of the lungs and in the other the abscess had already burst into the peritoneal cavity before operation All the amoebic cases were put on Ipecacuanha and latterly on Emetine Auto vaccines were also tried with good results

Besides the operations above mentioned 16 abdominal sections were also done for tubercular peritonitis, pergastric adhesions, hydatid liver, Anemysm of abdominal aorta, Tubercular cæcum, Cirhosis liver, Malignant disease liver, Retro peritoneal sarcoma, General peritonitis and Anemysm of cæliac axis, etc

Suprapulic Prostatectomy —Six cases were done Four

Captain E W C Bradfield, FRCS, IMS gives details of the following two cases —

Remoral of foreign body from the lung—The patient a European child, was admitted with a history of a pin having slipped into the trachea. X-ray showed the pin lying at the level of the 4th 11h and two inches from the front of the chest. The pin, 13 inches long, was lying transversely. Low tracheotomy was performed, and by means of the bronchoscope the pin was seen lying across the bifurcation and fixed in the lung. Some difficulty was experienced in dislodging the pin from the lung, but after one or two attempts the pin was successfully removed. The patient made an uninterrupted recovery.

Tuberculous disease of bones and joints.—Thirty three cases were treated in the wards located as follows.—Hip 14, spine (Pott's disease) 9, ankle 3, knee 2,

foot 3, elbow 1, and wrist 1. Of these, 24 were only relieved or discharged at their own request, and considering that the average stay in Hospitil, including five cases of over six months, was only six weeks, the small percentage of cures is not surprising. These patients will not undergo treatment for a long enough period, but as soon as they begin to feel a little befter insist on leaving the Hospital generally to return in a much worse condition after a few months. Many cases are seen which, if they would only submit to prolorged rest and treatment for 12 months, should be cured. Unfortunitely they have not the necessary patience or fall a prey to the effects of their own treatment.

Capt A I H Russell, MD, BCh. IMS gives the following details of the work in his wards —

Intestinul obstruction —This was a case of obstruction of small intestines about two feet above the ileo excal valve apparently caused by the sigmoid which was impacted with haid facal accumulations passing over the middle line to the right side and entering the pelvis on the right side. The patient had been admitted six weeks previously for a similar condition, which was relieved by enemata. Enemata failed to relieve on second admission and a laporotomy was performed. The sigmoid and descending colon were massaged and emptied of fæces.

Inquinal hermia—The only deaths in 52 cases was a case of obstructed hermia, with three days' constipation. The bowel was in the verge of strangulation. He died

two days after operation

Gastro enterestomy—The only case operated on, died the day of operation Post mortem examination revealed that the stomach was small and contracted, while the second part of the duodenum was incorporated in a thick firm adherent mass, formed by the under surface of liver, gall bladder, gastro hepatic omentum and head of pancreas. The common bile duct and portal vein were incorporated in the mass of fibrous tissue. Gall bladder was much thickened. No leakage at operation site.

Liver abscess — In one case, a European, the liver pus was aspirated and 200 c c emetin soln, grs 4 to 1 pint, was imjected into the cavity Temperature fell to normal and remained so. At the end of a week, a painful swelling developed over appendix region and on operation 2½ pints of liver pus were removed retro per tonerlly, the abscess cavity extending as high as the lower margin of the liver. A discharge of bile from the wound continued for a few days and ceased completely all on a sudden and the patient is now well on the way to recovery.

Appendicectomy—One of the cases was that of a Eurasian boy who had been ill three days. On admission his temperature was 994, pulse 84, and the only untoward symptom was a slight abdominal distension. Immediate operation was performed and the appendix was found to be practically gangrenous and on the point of bursting. It was removed with some difficulty and a drainage tube was left in right that fossa for 48 hours. Temperature never went above 100° and patient made an uninterrupted recovery.

Salvarsan injections—A large number of these were given for syphilis in all stages. The intravenous method of injection was uniformly carried out. In those cases which remained under observation for a period, the fact, that the best results are obtained when mercury is given regularly after the salvarsan, was amply confirmed

Vaccine therapy—Those for staphylococcal infections give uniformly excellent results. Those for streptococcal infections were more varied in result, while gonococcal vaccines for the chronic cases of gonorrheal synovitis so commonly met with in Madias gave very disappointing results.

The following remarks by Capt A P (7 Lorimer, MB, the Resident Medical Officer, shows that much has yet to be done to make the

outpatient department as useful as it ought to be in a fine hospital in a big city like Madias —

The work of the Out patient Department has been An increase carried on as described in last year's report of 3,480 Indian patients may be noted, though there is a slight reduction in the number of European patients attending. It will be seen from the tables attached that the subordinites (Assistant Surgeons and Sub-Assistant Surgeons and Sub-Assistant Surgeous) have been frequently changed, while for long periods the striff of students working in the Out-patient Department have been quite madequate to deal with the work I have found that between 25 and 30 students are required for the proper carrying out of the work, but frequently and for considerable periods I have had to work with eleven or twelve. Until it is possible to increase the staff, both medical and clerical, in the Out patient Department, no precise or accurate statistics can be prepared At present the limited staff and the uncer trinty in the number of student workers make not only the statistical results unsatisfactory and maccurate, but reduces the therapeutic value of the department very When it is considered that in any up-to considerably date hospital the Out patient Department is not one institution but a collection of departments, each with its own system and staff (eg, Skin Department, Ear, Nose and Throat Department, Surgical, Venereal and Medical including special facilities for the examination and treat ment of diseases of the chest), it is plain that the present state of this department with only one Medical officer, an insufficient and changing staff with no facilities for separation of different classes of disease is not such as to render possible the carrying out of accurate and system atic examination and treatment. The results of such a state of affairs are very far reaching for example, many chronic cases which might be well treated as out patients have to be admitted into the wards because of the lack of the necessary accurate supervision and attention Naturally this interferes with the accommodation in the hospital available for acute cases who should have first claim

For several months Di Ramaswami kindly volunteered to undertake the examination of cases suffering from diseases of the ear, nose and throat. Temporary accommodation was placed at his disposal on the upstails verandah of the out-patient building. Cases requiring dark room examination and serious operation have been at tended to after out ratient hours by Major H. Kirk patrick, i.u.s., who kindly undertook this part of the work. A daily attendance of nearly 50 patients has resulted.

It is a pity that the other big hospitals in India do not follow the example of the General Hospital Madias and thus fully print and publish their annual reports

### III

CANAL ZONE MEDICAL ASSOCIATION \*
OCTOBER 1911 TO MARCH 1912

(Vol IV, Pt 2)

As usual the proceedings of the Canal Zone Medical Association are full of interesting matter

Dis Dailing and Clark describe an unusual type of tuberculosis called by Adami 'Chronic hyperplastic tuberculosis in a Jamaican Negro aged 23. The same writers describe two cases of infection by Linguaiata Serrata in a native of Central America. The larva was parasitic, but

no doubt hamless, and the patient died of Circhosis of the liver

"Virchow found the parasite in Wurzburg and Beilin, Wagner in Leipzig, Frenchs in Bieslau, five times in Zenkei first called attention to the 47 autopsies occurrence of the larvee in man, having found it nine times in the liver in 168 autopsies According to Zaeslin two cases occurred in Basel in 1,914 autopsies According to At Kronstadt, larvæ were found six times in 659 autop sies, most frequently one or two specimens being found Fuedbeiger and Frohner state that the in the liver parasite is found more commonly in some districts than the others. They found it frequently in Berlin, but only exceptionally in Munich Hering found it once only in Stuttgart, while Colin found it in 64 out of 630 Parisian dogs examined. The parasite seems to be present only in the larger breed of dogs, such as mastiff and in the butcher's dogs, and was found oftenest in the ethmoidal cells firmly attached to the mucosa."

The adult of L seriata is more rarely found than the larval forms, but are most frequently found in the masal and air passages of dogs and wolves. An account of these parasites is given in Castellani and Chalmers' new edition, page 621

Di R C Connoi described a case of **tetanus** with a six-day incubation period, he recovered and was treated with antitetanic serum

Lt-Col John L Phillips, U S Army, Assistant Chief Sanitary Officer and Dr D E Reeder describe diphtheria cases in the Canal Zone where this disease is endemic, though it is suggested that it is spread by visitors returning from the United States

Dr Deeks and Dr. Connor describe cases of **Pellagra** and the former believes pellagra to be due to a "Carbohydrate auto-intoxication, not alone due to sugar, but "to all starchy foods" Dr Connor writes of "atypical forms of plague"

Di Connoi writes of "atypical forms of plague"
Di Clark and Di Darling have a valuable article on Status Lymphaticus

Di Henry Weinstein describes cases of Ainhum occurring in one family, in an African with a European name and in his family. The article gives a good account of the disease, and the cases reported are well illustrated. We quote the following remarks on this tropical disease, which has been very little written about since the late Di A. Crombie discussed its causation in these columns many years ago.

F C Wellman reports a case of ainhum and summarizes the various theories advanced hitherto

1 Due to injury, foreign bodies, etc (Manson, Eyles) 2 Self mutilation, instru

ments, etc
Congenital spontaneous

amputation (Proust)
A form of mutilating

leprosy

i A form of tropho neurosis (Wucherer, Scheube, Darling)

i A forn of localized (Da Silva Lima)

In addition to the above, Wellman suggests that the chigger (Sarcopsylla penetruns) may be a causaine factor

It is quite reasonable for purposes of discussion to combine 1 and 2 as belonging to the same category, namely, external influences. The cause of ainhum has

<sup>&#</sup>x27; I C. C Press, Mount Hope, Canal Zone, Panama

been ascribed to injury by foreign bodies coming in contact with the most dependent part of the foot, the It is claimed that barefootedness of the class of people affected is a very important factor Many authors, who have reported cases in the literature, have ruled out absolutely external injury If barefootedness were a cause, the natives of many countries should be affected, whereas most of the cases reported were in negroes living in cities and wearing shoes. Dr Silva Lima has not seen the disease in the balefooted Brazilians or among the creoles Why should the disease attack males almost exclusively and shun the barefooted women? How is the hereditary factor to be ruled out? Although the natives of Africa, India, Polynesia, and other parts of the globe inflict upon themselves many injuries by wearing ornaments upon exposed parts of the body such as nose, lips, toes, etc., yet ainhum could hardly be ascribed as due to them

3 Proust contends that annhum may be due to congenital malforn ations. He claims that as a result of some interference in the development of the feetus some parts may become arrested causing amputation of fingers and toes, and that the umbilical cord or fibrous projections may ensure these parts causing arrested development, leading later on to spontaneous

amputation

Zambaco Pasha is the most enthusiastic supporter of the theory that ainhum is a form of mutilating anesthetic leprosy. He studied his cases in Syria and especially at Benut where leprosy is very common. Many diseases of obscure nervous origin such as syringomyelia, morphea, scleroderma diffusum and ainhum are attributed by him to leprous manifestations. Di Collas who observed ainhum among Hindus is quoted as holding views similar to those of Zambaco Pasha.

It is to be noted that all of his cases were Caucasians of all ages and both seles. The lesions are described as occurring alike in hands and feet, fingers and toes, with irregular distribution. The clinical symptoms are those of anesthetic leprosy with all the nervous symptoms—anesthesia, analgesia, electrical and thermal distribunces, together with muscular atrophy. There were also observed perforating ulcer, atrophy of the nails, and pigmentation of the skin Zambaco Pasha also has leanings toward the hereditary tendencies of leprosy and considers the pathological findings in spontaneous mutilating leprosy and ainhum as similar.

De Brun takes issue with Zambaco Pasha He, too, observed his cases at Berrut In more than 900 cases observed by him not one was seen in which the fifth toe was exclusively affected. Although he found a constricting band in some of the fingers and toes it was rather

irregulai, not circulai as in ainhum

Annhum rarely begins before the period of adolescence, anesthetic mutilating leprosy may occur at any age. The racial factor is district in annhum but not in leprosy. Although very seldom toes other than the fifth may be involved by the often symmetrical ainhum process, in leprosy, fingers, toes, and other parts are affected (Polymorphism). Ulcers, fissures suppuration, and other inflammatory conditions are seldom noticed in ainhum, but are very common in mutilating anesthetic leprosy.

Dr S T Dailing has a very valuable article on amœbæ and entamœbæ (we are glad to see the Canal Zone does not pationise the usual "American" spelling) and he points out the need of using an expert to tell the difference between entamæbæ and the free living forms—

"There are several kinds of amæbæ which trouble the doctor in the tropics, and they are divided into groups, depending on whether they are parasitic in the intestinal tract or not. Those developing in the bowel are called entamæbæ, while those that merely pass through in an encysted state with the food, and which do not undergo any development, except in the outside world, are called amæbæ

The common entamæbæ are E histolytica, E tetragenu, and E coli \*

The parasitic forms are subdivided further into the parasitic but nonpithogenic E coli, and into the pithogenic E histolytica and E tetragena. While E coli is not regarded as an organism that invades tissues, it is not unlikely that if a break in the mucosa or bowel wall should occur E coli might regetate in the peritoneal exudate for instance. Recently while taking temperatures by rectum of a monkey that had been moculated from a case of measles, one of the thermometers was broken and penetrated the peritoneum through the rectum. Peritonitis ensued and at autopsy six days later, a yellow typical entancebic inflammatory process was seen extending over the peritoneal surface of the large bowel, in the pelvis, and about the crecum. In the exudate, were many entancebic.

The specific identification of entamodre is of the greatest importance to physicians and sanitarians. To the former, for the reason that some of them believe that the pathogenic type recognized as E histolytica is amon able to specific medicaments, while the type recognized as E tetragena is not so amenable to specific treatment. To the surgeon, for the identification of pathogenic entamodre in certain cases may determine his opinion as to the advisability of an exploratory operation for entamodre liver abscess, or performing a decostomy

The subject is of importance to sanitarians on account of its relation to 'carriers,' and to the sanitary measures directed specifically against the mode of transmission."

"The cultivable species of the genus amobe are not parasitic in the intestinal tract of man. When obtained in cultures from the intestine they probably are derived from cysts of amobe that have been ingested with water or food and have passed unchanged through the intestinal tract.

The entancebre parasitic in the intestinal tract of man belong to a distinct genus. They are strictly obligatory parasites and are incapable of multiplication outside of the body of their host. They crimed be cultivated on Musgiave and Clegg's medium."

"Influenced by the cultural work of Musgrave, Clegg, and Walker, the doctrine of symbiosis as enunciated by Musgrave was considered essential to an understanding of the bionomics of entancebe. This doctrine usually has a stricter application than that made by Musgrave in his paper on bacterial symbiosis, published in the Philippine Journal of Science, 1909, in which he stated that 'Symbiosis may be defined as representing all phases of association between living organisms. Beginning with commensalism on the one hand, and including true parasitism on the other, in which either component is influenced in nutrition, metabolism, production, or in some other manner by the presence of the other."

"In the work of the 'culturalists' it was found necessary to seed the nutritive plates with bacteria for the amæbæ to live upon. In other words, the amæbæ could not find ready made or in any shape, nutritive substances in the media which on the other hand were amply nutritive for bacteria. Recent researches have indicated very positively that the amæbæ studied so faithfully by Musquave and Clega were not parasitic entamæbæ, but were free living specimens of amæbæ.

It is possible and indeed highly probable, that inferences made from a study of cultivation experiments with free-living amorbe, whose normal habitat is the sunlit soil or stagnant water and whose only source of food is air, soil, and water bacteria cannot be applied by way of analogy to an obligate parasite such as a pathogenic entamorb."

<sup>\*</sup>Note—Recent statements by Hartmann and Dossem would seem to indicate a growing belief in the minds of protozoologists who have worked in this field, that Schaudinn's descriptions of what he called E histolytica were based on degeneration forms of the entangence now known as E tetragena. In a recent fatal case of entangebic dysentery, I found in some preparations, entangebic with histolytica, nipponica, and tetragena features ade by side

"I wish to call attention to the very important differences in the pictures obtained by staining with hematorylin and Romonousky Hematoxylin stains the refractile granules which are so evident in the nucleus in the fiesh specimen, and these granules are called chromatin. They are condensed in the centriole, karyosome ring or karyosome substance, and in the peripheral nuclear ring. In Romonowsky preparations, it seems to have been customary to call certain structures within the nucleus and staining a bright purple, chro matin, but by carefully differentiating, it will be seen that the purple substance has quite a different distribution within the nucleus, from that substance which stains with hematoxylin and is also known as chromating the party of the nucleus which It will be seen too that the parts of the nucleus which stain well with hematoxylin have taken a blue coloration in the Romonowsky preparation, and that the structure or substance between the centricle and the nuclear membrane, known as the karyosome ring, stains rather faintly with hematoxylin, but intensely purple in the polychrome blue eosin preparations. This point should not be lost sight of, for it has frequently been the occasion of introducing errors into the illustrations and descriptions of protozoa in literature, for example, Dr Craig's colored drawings of E histolytica have been reproduced by Prof Calkins in black and-white values, thus giving an absolutely erroneous impression of the structure of the nucleus. When we consider that hematoxylin, in black and white is the universal language, so to speak, used by parasitologists, then with regard to the points discussed above, the importance of always explaining whether by chromatin is meant true chromatin or purple chromatin is evident"

"In closing, I should like to emphasize one of two points First, with regard to the criots which have crept into the literature on the subject of entamaba by the use of polychiome cosin stains, and the attempts to describe life cycles and appearances of various structures with these stains. Careful observation of fresh specimens, compared with wet fixed hematoxylin preparations, reveals the fact that hematoxylin stains the refractile substance known as chromatin. When these two preparations are compared with those stained by Romonowsky, it is seen that the nucleus reacts with the stain, so that what is stained intensely by hematoxylin is stained feebly or not at all with blue in the polychrome eosin preparations, again, the nuclear portions staining purple in polychrome eosin preparations and called chromatin by various writers are entirely different from hematoxylin chromatin

Di. James has also a valuable article on the differentiation of these amoebæ from which we must make a few extracts, as in these days of emetin treatment the diagnosis of dysentery as bacillary or as amoebic is all-important (the italics are our own)—

"When I came to the Isthmus in 1906, among the many other objects in stool examinations that were almost daily demonstrated to my untutored gaze, were small bits of protoplasm that possessed more or less motifity. Among these, I was told were amaba colinated these were certain manifestations of dysentery, past, present or to come, whether or not the patient showed formerly or at the time of examination any supplies of the disease. There were also in the specimens of the disease. There were also in the specimens other objects which resembled these amobase identification might have been said to depend on motifity. If the suspected organism three out pseudopodra, or "kicked," as this manifestation of activity was termed, then I had indisputable proof of the need of active treatment and forthwith thymolor quimme arrested discomfort of the patient than of the amabase I was very much interested in these amabase, and read

about them in what literature I could get, but I do not recall that I saw anywhere, and certainly not in the textbooks of that date, any distinction of species. All the writers whom I consulted, termed the organisms found associated with dysentery, amebar coli. At that time, the water supply was not in its present state of efficiency, and anice e. were very frequently found, particularly in that class of patients known as "Zone charity," and also among the human derelicts known as "beach combers," who were stranded in Colon

Shortly after I had arrived, and had become as firmly convinced as anyone else here as to association of ameba coli with dysentery, those who had become proficient in the identification of the parasite, claimed that non motile amæbæ could also be distinguished with certainty As a corollary the number of cases of amabic dysentery, or rather of amæbic injection diagnosed as amebic dysentery, increased, in one instance, 300 per cent in two months. The number of quinine and thymol irrigations rose in proportion, as did the sufferings of the patients, many of whom, if they did not have colitis prior to the treatment, certainly developed it later. The charts of that day contained among the stool findings a very high per cent of amaba coli. It is fortunate that most of the physicians did not make a diagnosis unless the amaba. The charts of the treatment of other diseases. I know now that many of the non-motile amaba which were responsible for a diagnosis and treatment of pathogenic infection were cysts of Ent. coli, and probably, in some cases, cysts of Ent. tetragena also

I do not know when the first attempts at a differential tion of species were made here. Speaking now only for myself, the first time I heard of histolytica was when I was on leave in Baltimore in 1908. I was asked there what method we used to distinguish histolytica from coli. If I remember correctly, I maintained a discreet attitude, and tried to give the impression that we found the distinction very difficult. And here I must confess that although I must have seen very many specimens of histolytica and coli between 1906 and 1908, if any differential appearance that they presented struck my attention, I do not remember what it was

Since 1908, we have, I believe, tried faithfully to differentiate the two species, and most of us if not all, recognize the histolytica as a definite agent in the production of dysentery, and the coli as a harmless commensal. If any of you disagree with this statement, I shall correct it with pleasure, but will not discuss it at this time, as a full account of arguments on this subject can be found in the recent literature.

However, or troubles in differentiation, I regiet to say, are by no means over In 1908 Viereck, and independ ently Haitmann and Prowazek, described entancebae which Viereck called Entanceba tetragena This organism resembles in appearance, as regards motility and the characteristics of the ectoplasm and endoplasm, the histolytica, but follows coli more closely in its life cycle At present there is as much dispute as to whether tetragena and histolytica are separate species, or are different stages of the same organism, as there was in regard to cole and histolytica prior to Schaudinn's work Tetragena and histolytica are each pathogenic for appears to be much less virulent

I have given this history, incomplete as it is, of amoetic dysentery in the Canal Zone and elsewhere, to make as plain as I can the importance of identifying the entamoetic in the same manner and under the same conditions that the malarial parasites are identified Other species of entamoetic are said to exist in man, and dysentery is attributed to them. If their identification should hold, probably some will be found here also However this may be, it is certain that in the past, as the subject will emphasize again, we have treated many cases of simple infection with Ent. coli for hypothetical simple or complicated infections with this organism for

time amount dysentery, unless pathogenic entamount are associated also Ent coli is found, in health, in diarihaa, in many diseases not complicated in any way with dysenteric symptoms, and very possibly may be found also in dysenteries that are due to agents, such as the Shiga bacillus, against which it is a naste of time to try bismuth, specae, or even quinine and thymol irrigations. On the other hand, very serious results would follow the identification of coli for histolytica. It is time that the persistence of dysentery in such an instance would reveal the true cause of trouble, but such a method of diagnosis, fraught as it is with every possibility of serious complication, cannot be too heartily condemned Also, histolytica and coli are not infrequertly present in the intervals between exacerbations of dysentery, and to take the former for coli with failure to initiate prompt and active treatment, would be a mistake in diagnosis that might seriously impair the patient's health."

## Medical Society.

MEETING OF THE ASSAM BRANCH, BRITISH MEDICAL ASSOCIATION, HELD+ IN DIBRUGARH, 251H JANUARY 1913

### Present

DR WITHAM, President, Major Leventon, IMS. Lt Barker, IMS, Doctors Russell, Hunt McCombie, Hart, Roberts, Valentine, Smythe, Crole and Macnamara, Hon Sec

Doctors Hallwright, Flory and Fry regretted

they could not attend

- 1 Di Witham welcomed the members and trusted that those who were not members of the association would become members before next meeting
  - 2 The minutes of the last meeting were read
- 3 It was an anged that the next meeting be held in Joiehat in April
- 4 The following gentlemen were elected as officers for 1913
  - Di Witham, Piesident

### Committee

- Dı Wınchestei foi Sibsagai
- Di Valentine for Tezpur and Bisnath Major Leventon, i Ms, for Dibrugarh
- Di McCombie for Panitola and upwards
- 5 Dr McCombie showed an interesting case, in a young man, which showed all the symptoms of disseminated sclerosis. The nervous symptoms were exceedingly well marked. Considering the great rarrity of these cases in Assam, the meeting was very grateful to Dr McCombie for bringing the patient.
- 6 Di Valentine read his experience with salvaisan (69 cases, including two of neo-salvarsan) (Published above, p. 299). The President invited discussion. Dr. Hart tried salvaisan in two cases (Dr. Isaacs' cream preparation). His first case was a woman with serpiginous ulcera-

tions on which HG & KI had no effect, '25 gramme of this preparation cured his case in He gave a second injection after 11 days, practically establishing a cure He noticed that the hæmoglobin increased from 40% to 50% in a few days and went on increasing till 70% and at the end of 3 months was quite The second case was an elderly man with chionic rupia, refractory to HG & KI. marked improvement took place Two injections were given, then the man left hospital then the man relapsed within a period of 3 Di McCombie asked regarding relapses months The President said he had used the cream preparations, but gave six weekly injections had found excellent results follow. He had found that pain was not so marked with the oily pre-He found that subsequent HG treatment was desirable and arranged that his patients should be placed in a gang to receive He mentioned a case, where he had given a watery solution injected and after 10 days an only injection The ultimate results of this case was extremely good He infeired that salvaisan caused a disappearance of infection which would have taken a couple of years with Regarding the treatment of anemia with salvarsan, he had commenced treating cases, but had formed no opinion. Di Hait asked about Valentine replied that any  $\mathfrak{D}_1$ ınduıatıon cases that he had injected or infused twice had He did not not relapsed up to the present think that the boie of the needle caused the blocking so much as the unevenness of the solution or emulsion. He agreed that recently distilled water was desirable for the solution

Di Duncan Hait read notes on fom cases of diphtheria which are extremely rare on tea Major Leventon said that though these cases were rare, they were not unknown remembered two cases amongst Europeans where the throat symptoms were quite slight, but paralysis of the palate was quite a marked He 1emarked on only one case showing paralysis. The President said that he had He mentioned that it found the disease rare was said at home that a wet summer showed comparatively few cases of diphtheria and it was possible that our very wet climate here gave us comparative immunity or rather freedom from Di Hart replied diphtheria

8 Di Valentine read a paper on cholera and its treatment by intravenous transfusion of saline

Dr McCombie asked if these cases were epidemic or sporadic, and mentioned that in many cases of choleraic diarrhæa malignant tertian parasites were found.

The President remarked on "Laopani" producing cholerate diarrhea The diagnosis of such cases should be established microscopically Major Leventon complimented Dr Valentine on

his paper and drew attention to the fact that the earlier the transfusion is made, the better results He mentioned three cases where were noticed The people would not transfusion was refused allow any cutting whatsoever He then gave rectal transfusion, raising the pelvis high, and adding The solution was 2 adrenalin to the solution drachms of salt to the pint and the three cases recovered Unnation was established 18-36 hours The three cases were children, aged 6, 8 and 12 Each child had 4 or 5 injecand were brothers tions of 2 pints and care was taken that the fluid should not be expelled quickly

Major Leventon showed some excellent skiagiams of fractures, etc

## Congespondence

### A REMEDY FOR PRICKLY HEAT

To the Editor of "THE INDIAN MEDICAL GAZETTF"

SIR,—I was interested in Di Hankin's remedy for prickly heat given in the Gazette of June 1913. Shortly after my first urival in India (thirteen years ago), from experiments upon myself, I came to the conclusion that prickly heat was due to the long continued action on the skin of the acid part of aweat

I agree with Dr Hankin in the success of his iemedy, but I differ in the rationale of the treatment. In my opinion the I differ in the rationale of the treatment. In my opinion the reid is not an adjuvant of the disinfectant in the sense of increasing its penetrative power—but the real effective in gredient of the remedy. The disinfectant is quite un necessary in uncomplicated cases of prickly heat. The disinfectant which is my hands gives next relief to the life.

necessary in uncomplicated cases of prickly heat The disinfectant which in my hands gives most relief is carbolic acid, the anesthetic action of which is very useful. It is necessary to follow out carefully. Di Hankin's directions regarding application. If the remedy is applied to the affected area while the sweat glands are active, the disease is merely aggravated, the remedy should be applied "under a punkah" as Di Hankin states, or as I should put it—while the sweat glands are at rest.

COMILLY, 19th July 1913

Yours, etc. A C MACGILCHRIST, Major, IMS

### 1 CASE OF TORSION OF THE SPERMATIC CORD To the Editor of "THF INDIAN MEDICAL GAZETTE"

Sir.—A Hindu boy of about fourteen was brought to the hospital one morning complaining of pain in his abdomen which had come on suddenly earlier in the morning.

On examination he described the pain as being situated in the right side and extending down into the groun. The legs were drawn up, the abdomen fairly rigid and evidently

very severe pain was present.

On palpation the abdomen was found to be normal and the seat of the mischief was quickly located to the right side

of the sect of the mischief was quickly located to the light side of the scrothin. The light testicle could be felt enlarged and there was a certain amount of fluid present. Just above the testicle a peculiar twisted mass, evidently connected with the coid, could be felt which was unlike anything I had ever felt before. A hermia could be at once excluded and the cord above the mass felt cutte pormal.

hefore A hermin could be at once excluded and the cord above the mass felt quite normal

On opening the sciotum it was found that about two inches of the cord immediately above the testicle was spirally twisted on itself and kinked. There were in all five spiral twists in the direction of the septum, the part of the cord involved and testicle being much congested. It was increasing to pull the testicle completely out of the seriotum before the cord could be untwisted.

It was subsequently ascertained that the boy had been

It was subsequently ascertained that the boy had been truing how many times he could twist his testicle round and could not untwist it again

BUNDFILLIAND, ) 10% Inly 191,

J R J TYRRELL, WB, CAPT, IMS, Agency Surgeon

### PYOSALPINX

To the Editor of "THF INDIAN MEDICAL GAZETTL"

Sir,—In the May number of the Indian Medical Gazelle Major Barry, IMS, published a priper on Pyosalpin in which he give the results of operation upon 100 cases. I can supplement this by a short note upon 23 lapprotomics for the same condition performed by me in the Rangoon General Hospital when I had charge of Major Barry's wards during his absence on leave

In my series of cases both tubes were removed 19 times—one tube 4 times, Hysterectomy was performed three times, and in one of these latter cases the appendix was removed as it was adherent in the Pelvis All the patients made good 1 ecover 1es

The article referred to dealt very fully with the subject and I do not propose to recapitulate, rather do I wish to draw attention briefly to a few points. I note that no mention is made of the use of the aspirator, in those cases in which the Pelvis is completely and tightly blocked up aspiration of the pus relieves the tension and enables the operator to find those natural lines of cleavage between the adhesions to find those natural lines of cleavage between the adhesions which his fingers find the more readily as his experience increases

In most cases even when both tubes have been removed I think it is possible to fix the uterus satisfictorily, and this fivation is an essential part of the operation. In my opinion the uterus should be removed for two chief reasons firstly, the uterus should be removed for two chief reasons histly, when by so doing the operation is materially expedited and facilitated, and secondly, when the interus is either diseased or prolapsed I found it necessary to perform Hysterectomy on three occasions, once because of a large fibroid, once because the uterus was completely prolapsed, and once because in no other way could I deal with the tubes. In this last case I found it easier to work from the centre to the periphery, the risk of injury to the under in dealing with tough lateral adhesions to the pelvic wall is considerable and can be avoided to a large extent by this procedure.

The method of diamage and after treatment are important. In difficult cases where numerous adhesions have been separated complete homostasis is difficult to secure and a certain amount of oozing is inevitable. In these cases I think that diamage through the vagina is more efficient than through the abdominal wound. All cases of recent purpose and infection should be drained for 24 hours. The Fourier position and Salvage should be part of the

The Fowler position and Salines should be part of the routine after treatment Personally I gave morphia to all my cases, the advantages of a good night's sleep seem to outweigh all other consideration. The assiduous care and attention given to these patients by the European sister in charge has undoubtedly been no small factor in their Testivition to health. restoration to health

I have had the advantage of seeing and assisting in the excellent Gynecological practice which Major Barry has built up, otherwise I should have treated by preliminary drainage some of the cases of Pyosalpina in which the tubes were successfully removed. My recollection of similar cases in England, while I was a Resident Obstetrical Officer, is that they came to hospital much earlier and that adhesions were not so common or so formidable. These are factors to be taken into consideration in any comparison of results

S T CRUMP.

CAPT, I WS,

June 1913

Civil Surgeon, Myaungmya, Burma

### EMETINE AND LIVER ABSCESS

To the Editor of "THE INDIAN MEDICAL GAZLTTE"

Sir,-It is well known that Emetine is specific not only in amobic dysentery but also in congestion of liver, threaten ing to suppurate It is not known however that it is efficiences in liver abscess where suppuration has already taken

Among medical men there is an unanimous opinion that when once supputation has been established no drug will be when once suppuration has been established no drug will be of any use except kinfe. The study of the pathology of liver abscess shows that there is a marked difference bet ween the suppuration that takes place in the liver as a result of amorbic dysentery, and the suppuration which occurs elsewhere as a result of infection with ordinary pyogenic cocci. In the former the pus, which is like crushed strawberry pulp, consists of nothing but the debris of degenerated liver cells and is sterile, whereas in the latter the pus consists of pus corpuscles and liquor puris with pyogenic cocci and their products, the absorption of which experience shows produces septicemia and pyæmia experience shows produces septicamia and pyamia

On the other hand, the absorption of the former fluid need not projuce any serious effect as the fluid is sterile. I had an opportunity of treating a case of tropical liver

I had an opportunity of treating a case of tropical liver abscess due to amæbic dyschery where such absorption did take place without any haim. A patient named Vazeer Bi, aged 40, had a severe attack of dysentery about an year ago, which was neglected and improperly treated and which continued off and on in the form of diarrhea up to the time I saw her. There is a clear history of excessive drink. About four months ago, she started getting high fever with rigors and later on the fever thated a bit and was unattended with rigors. On the 20th behaviory 1913 she was seen and treated by Dr. A, and 30 ounces of pus mixed with blood was aspirated. On 26th February 1913, 29 ounces of piss, and on 1st March 1913, 21 ounces of pus were removed by Dr. A. After one or two more aspirations, it was decided to open up the abscess, as the quantity of pus was not diminishing and the patient was more aspirations, it was decided to open up the abscess, as the quantity of pus was not diminishing and the patient was getting weaker. The patient was unwilling to be operated and I was consulted on 13th. March 1913. I found her extremely weak, an emic and emacrated, with enlargement of liver extending almost to the umbilicus in the median line and about 6 inches below the right costal arch in the right mammary line. The swelling due to enlargement of liver was quite distinct and visible. She had severe throbbing pain in the region of the liver and was unable to be on that side. She used to have hive I quid yellow motions daily with out any griping pain. Her fever ranged between 99.8° in the morning to 103° in the evening. It was distinctly of hectic type and she had hectic flush on the malar bones, she was not even able to sit or move in bed. She had nausea and was unable to take her food.

I prescribed ‡ givin of Emetine dissolved in distilled.

I prescribed ‡ givin of Emetine dissolved in distilled water to be taken thrice a day. Within a week the tempera ture came to normal and remained normal. Diarrhica stopped. Pain in the hepatic region diminished. The swelling and the month's time, the ling gradually began to diminish, and in a month's time the liver returned to its normal dimension. Pain completely cersed She was able to walk and had an appetite An uma disappeared and she began to gain weight She had altoge their 21 grs of Emetine During the treatment I noticed two things Frist, she had addema of face and feet, most probably due to excessive work thrown upon the kidneys as Directing and Digitalis Second, animum increased most probably due to Hamolytic effect of the pus absorbed This was treated by Hamatogen My object of publishing the case is, first, to impress upon the medical men that Enim tine is efficacious even when suppuration has already taken place, and second, that it is equally efficacious when given by

mouth

Yours, etc.

S MALLANNAH MD, DPH,

Bacteriologist to H H The Nizam's Govt, Hyder abad

### A CASE OF INFANTILE CONVULSIONS DUE\_TO "ASCARIDES"

To the Editor of "TILL INDIAN MEDICAL GAZFITL"

Six,—On the 8th of August 1912, I was called to see a Mahominedan gul, Amina by name, aged 4 years, who had fever, the girl was unconscions and the body temperature under the axilla was 1046° F. A dose of aspirine (gr. ix) and cold spongings were prescribed to bring the temperature down and it fell to 1013° F. within a short time, when quinine in the form of mixture was tried by the mouth. The girl rejected this, and a dose of enquinine (gr. iii) was administered. Her relatives did not again call me that day, but asked their family physician (a private practitioner) to but asked then family physician (a private practitioner) to treat the case

August 9th, 1912 Next day at about 10 o'clock I was again called to see the child This time I found her much exhausted, severe convulsions and twitchings of the extremities were present, while the tongue was frequently producing from the mouth. The temperature can high up to 1042° F, and the extremities were cold. I at once ordered cold douches on the head (cold water mixed with rinegar) and injected hypoder mically quinne, acid hydrochloride gr x and morphine hydrochloride

Quinine hydrochloude Acid hydrobiom oil Spt chloroform Glycerine Syr Rose Aqua Pura

At night, the gul was conscious and free from fever. She vomited once some bilious substance, and the convulsions were renewed, although to a milder degree. This time, the twitchings were of a jerking nature and occurred at irregular intervals, affecting chiefly the wrists, hands and the lower extremities. There was also some mild delirium.

extremities There was also some mild delirium. As advised, cold douches on the head were continued and the following mixture was given — Immon bromide, Ti Hyoscyamus, Tr Belladonna, Syi Rose, spt chi, Aqui, when the twitching gradually stopped. August 10th, 1912. On the 10th morning, the temperature was 98 8° F, but grinding of the teeth and some restleysness were observed. The tongue was still coming out and I gave coloned and santonine, of each 2 grains and tasteless castor oil 31. After some time the girl complained of intense punitable abdomen, and within a short time pressed out (12) twelve. in her abdomen, and within a short time passed out (12) twelve living round worms, each about 3½" long, at about 12 o'clock. By the whole day, the patient was conscious and at rest. The bromide and the quinine maxtures were continued. August 11th, 1912. On the 4th day of the disease there was nothing special excepting that the temperature fell down below normal in the morning but again became normal in the evening.

August 12th, 1912 On the 5th day of the disease, another dose of syntonine gi 1, calomel gi 4, and castor oil 3n effected the expulsion of (15) tifteen living round worms, each varying from 3''-4'' in length

After the escape of these 27 (12-15) round worms the child had no more convulsions and the temperature did no lorger lise. Quinne hydrochloride was continued for 6 days more, and the patient from this time quickly recovered

> Yours, etc., B C SEN GUPTA, Sub Assistant Sargeon.

JORHAT, ASSAM

### THERAPEUTIC AND LITERARY NOTES

Most Civil Surgeons in India we well acquainted with the MOST Civil Surgeons in India we well acquainted with the excellent instruments made by the Holbors Surgeon Instruments. Co A new catalogue just come to hand give descriptions of several new instruments, e.g., O'Malley's Tonsillectome, ('ag, and Adenoid Curette, the supply of throat instruments is large and varied, and we notice Sluder's tonsillotome, Donelau's tonsillotome, Jansen's hammer is very useful, and the forehead electric lamp should be very convenient. There is an interesting list of instruments used by Sir Arbuthnot Lane. The tuberculin Syringe deserves attention and Major Houghton's double bongte is worthy of notice. We recommend Surgeons to get this catalogue. We recommend Surgeons to get this catalogue

PRACTITIONERS of medicine will be interested to learn that Di Leon Blanc and Di H de Meire have translated into English Di Albeit Robin's "Treatment of Tuberculosis" The work will be published by Messrs J & A Churchill, 7, Great Marlborough Street, W

Great Marlborough Street, W

The same publishers have nearly ready an English translation of the Italian work, "A Treatise on General and Industrial Organic Chemistry" by Dr. Ettore Molinari The work of translation has been carried out by Mr. T. H. Pope, of the University of Bramingham. The text contains 500 illustrations. They will also publish a new and revised edition (6th) of "Surgical Pathology" by Sr. Anthony A. Bowlby, C. M. G., and Dr. F. W. Andrewes.

Messis E. T. Pearson & Co., Ld., 49, Watling Street, L. C., London, send us literature of the VASOLENS. Vasogen is a golden brown mineral oil, which emulsifies on mixing with water or body fluids. It is said to quickly penetrate the deeper layers of the skin and is consequently an excellent drug vehicle and solvent. Various vasogen, compounds are obtainable, e.g., rodine vasogen, creasote vasogen, mercury to the obtainable,  $e\,g$ , iodine vasogen, cleasote vasogen, merculy vasogen, &c, &c Some vasogens are liquid and some in the form of outments,  $e\,g$ , Merculy Vasogen for inunction.

### CELLOPHANE

This substance has been introduced by O Matthes, of Dusseldorf am Rhein. It is a soft strong transparent film of pure cellulose non fibrous, tasteless, and odomless, Insoluble and unaffected by water even when boiling, or by alcohol, or by chemicals or reagents in ordinary use. It contains neither oil nor India rubber and is greate proof. It is proposed for use as an antiseptic bandage for packing and for operating gloves. It looks and feels exactly like the thin rubber used for operating gloves, etc.

## Service Motes.

The Annual Indian Medical Service Dinner was held at the Hotel Cecil, London, on Tuesday, 10th June The Hon'ble Sn Charles Pardey Lukis, k C S I, the Director General was in the chair The guests were the most Honourable the Marquis of Crewe, Secretary of State for India, Sn Thomas Holderness, k C S I, Permanent Under Secretary of State for India, Sir Francis Champneys, Bart, President of the Royal Society of Medicine, Sir William Watson Cheyne Bart, C B, President of the Medical Society of London, and the Editors of the Lancet and British Medical Journal, General Sn Beachamp Duff, G C E, Sn Thomas Barlow, Bart, k C v O, President of the Royal College of Physicians, Sn Richman John Godlee, Bart, President of the Royal College of Surgeons, and Mr Austin Low, were also invited, but unable to attend but unable to attend

Eighty five members of the service, on the active or retired list, were present at the dinner, the gribering being the largest yet held. The senior officer present was Surgeon Major Robinson Boustead, a veterin whose first commission dates back to 23rd July of 1878, fifty five years ago. He served with the Turkish contingent in the Crimer in 1857 56, and received the fifth class of the Medicie, in the Mutiny, in the Central India campaign, in the second Chinese War in 1860, in the Abyssiman War in 1863, and in the Soudan in 1887, in the actions of Hashin, Tofiek and Tamar.

No other officer attended whose services began under the East India Company. The next senior were Surgeon Generals James Cleghorn, CSI, and Sir Lionel Spencer, KCB, and Colonel A. Porter, all of whom entered on 1st April 1865, in the first batch commissioned after the service had been closed for five years.

April 1861, in the first batch commissioned after the service had been closed for five years

At the I M S dinner held in Edinburgh ten days earlier, on 30th May, the chair was taken by Surgeon General for Alexander Christison, Bart whose first commission was dated 20th October 1851, nearly seven years before that of Surgeon Major Boustead Surgeon General Hay was present at both dinners.

After duner, the Chairman proposed the healths of the

After dinner the Chairman proposed the healths of the King and the Royal Family, and then that of the Marquis of Crewe, and in a short speech pointed out that the conditions of service offered were never better than at present, mentioning the settlement of the "fee question," the grant of annually graduated pensions, and other recent improvements. He also stated that the quality of the latest recents, as shown by their degrees and diplomas, fully maintained as high a standard as ever. The Marquis of Crewe, in returning thanks, praised the medical profession in general Cleghorn proposed the health of Lieutenant Colonel Freyer, who has managed the annual dinners for the last fifteen years, and Colonel Freyer, in responding, spoke of the rarity with which honours and rewards were given for purely professional merit. of Crewe, and in a short speech pointed out that the conditions

The following officers were present at the dinner in London

Surgeon Generals—Sir R H Charles CCVO J Cleghorn, CSI J P Gream, G Hay, Sir L D Spencer,

Cleghorn, Cal J P Glerny, Glerny, Glerny, Cleghorn, Cal J P Glerny, Glerny, Call Calthrop, Glerny, D ffiench Mallen, B B Glayfoot, G F & Hairis Cal, P Hehir, D E Hughes, C C Lattle, M D Moriarty, R D Murray, A Porter, P A Weir

Lieutenant Colonels—W G P Alpin, J Anderson, R J Baker, R H Caston, W H Cadge, J T Cakent D G Crawford P J Freyer, C R M Green, H Greany, E A W Hall, J Jackson, E Jennings, E R Johnson, D F Keegan, M A Kei, D P Macdonald, W Molesworth, J Mootherd, T R Multoney, W H Ogilvie, R Prasad W G Pridmore J J Pratt, W H B Robinson W H Thornhall, D Withker, H R Woolbert, H G L Wortabet

R Prised W G Pridmore J J Pratt, W H B Robinson W H Thornhill, D Withker, H R Woolbert, H (, L Worthbet Majore—W R Buttye R Bousterd, P F Chapman, S R Christophers, De V Condon A T Gage, A A Gibbs C M Goodbody, E Hutcheson, F H G Hutchin son J H Hugo, n s o. W Lethbridge, E A C Matthews J H Macdonaid, F O N Mell O St J Moses, C R Perice, T. L Perry, Sir Ronald Ross, K & B, F R S, S A Ruzzak R F Standage, J W Watson, J M Woolley C A Gill D P Goil, D L Graham, J B D Hunter, C A Gill D P Goil, D L Graham, J B D Hunter, Phipson R D Saigol, H B Steen, J Taylor, W P Williams

Strero Griffit Sir Charles Pardri Lukis, the Director General, has been appointed Honorny Surgeon to the Kinz from 20th February 1913, rice Surgeon General George Bidge, deceased, and Surgeon General A. W. Croft

has received the same honour from 2nd March 1913, vicious Surgeon General Su Colvin Colvin Smith, h CB, deceased These are the first vacancies, and the first appointments, under the recent orders of 8th August 1911, by which appoint ments to the King's Honorry staff will in future be filled up from the active list. Two Bengal officers take the place of two men of the Madras Service. Bengal has now got much more than its fair numerical proportion of these appointments, nine out of twelve, Madras has now only one, and Bombay two. The I M S. officers holding these posts are as follows, all but the two last being on the retired list.

#### Honorary Surgeons

Singeon General J. Cleghorn (B), 5th October 1898 Surgeon Major General P. Turnbull (Bo), 20th September 1902

Honorary Colonel Sir W. Hooper (B), 5th August 1804 Surgeon General Sir L. D. Spencer (B) 27th January 1406 Surgeon General Sir C. P. Lukis (B), 20th February 1913 Surgeon General A. M. Crofts (B), 2nd March 1913.

#### Honorary Physicians

Surgeon Major General J Pinkerton (Bo), 22nd March Surgeon General C E McVittie (M), 23rd March 1898 Surgeon General Sin B Franklin (B), 23rd March 1898 Surgeon Colonel J Richardson, (B), 26th September 1903 Honorary Colonel K McLeod, (B), 2nd May 1906 Honorary Colonel D D Cunningham (B), 4th December

BRICADE SUNGFON JAMES JOHN DURANT, Bengal Medical Service, retried, died at Crouch Hill, London, on 14th May 1913. He was born on 11th December 1831, and after serving for eight years, 27th April 1850 to 1858, as a Civil Sub Assistant Singeon (equivalent to the modern Assistant Surgeon), went to England in 1858, and took the MRCS the same year He entired the IMS as Assistant Surgeon on 10th February 1859, became Surgeon on 10th February 1871, Singeon Major on 1st July 1873, and retired, with a step of honorary rank, on 1st July 1883. The Army List assigns him no war service

LIEUTENANT COLONEL ARTHUR THFOPHILUS LODGE PATCH, Madias Medical Service, ietiied, died at Bangalore on 27th April 1913 He was educated at Abeideen, where he took the MB and CM in 1880, also the DPH subsequently in 1894, and entered the IMS as Surgeon on 2nd April 1881, becoming Surgeon Major on 2nd April 1893, and Lieutenant Colonel on 2nd April 1901, ietiiing on 19th June 1901 He served in Buima from 1887 to 1890, in the operations of the third Brigade, in operations round Nyingyan and also with the Myaing column, receiving the medal and clasp medal and clasp

THE Council of the Royal College of Surgeons, England, have adopted a resolution congratulating the IMS contenarian, Surgeon Major H B Hinton, on the completion of his hundredth year Di Hinton took the MRCS in 1835, seventy eight years ago!

LIEUTFNANT COLONEL HENRY CHARLES LEFFLER ARMIN, Bombay Medical Service, retired on 30th June 1913 He was born on 2nd January 1863, took the MRCS and LRCP, London, in 1887, and the DPH, of the London College in 1892, and entered the IMS as Surgeon on 31st March 1888, becoming Major on 31st March 1900, and Lieutenant Colonel on 31st March 1908, and being placed on the selected list on 25th April 1911 The Army List assigns him no was service His substantive appointment was that of Deputy Sanitary Commissioner Guzarat Registration District, but since 8th June 1911 he had been on finlough

As we have already announced, the designation of the Secretary to the D G, IMS, will in future be Deputy Director General, IMS

Director General, 1 M S

Lieutenant Colonel Bruce Seton, V H S, I M S, continues in that appointment, while Major J Gould, M B I M S, is appointed to be Assistant Director General, I M S (Stores) with effect from 4th April The Secretary to the D G, I M S in the Sanitary Department, will in future be known as the Assistant Director General I M S (Sanitary)

LIEUTENANT COLONEL KANTA PRASAD, I MS, lettled from the service in June 1913 He has had leave out of India on medical certificate since November 1911 He took the MB & MS, Edinburgh, and also the triple qualification in 1886 He entered the service in March 1888, in the same batch as the late Major D M Mon and Sn James Roberts, CIF He spent most of his service in civil employ in Burma He 18 an expert linguist and passed examinations in Burmese, Kachin, Maru Manipuli, Pushtu, Shan, and holds the degree of Henom in Uidu.

THE Commander in Chief in India is pleased to make the following appointment

Major C W F Melville, I MS, is confirmed in his appointment as Deputy Assistant Director of Medical Services (Mobilization) 1st (Peshawai) Division, with effect from 19th December 1912 (Reference India Army Order No 2 of 1913)

The following paragraph is going round the papers—
"The 'Father' of the Army—The distinction of being
Father of the British Army is said to belong to Surgeon
Major H B Hendon, late of the Indian Medical Service who reached the patriachal age of 100 on March 7 Born two and a half years before Waterloo, he became assistant sur geon in the Bengal Aimy in 1839, during the Viceroyalty of the second Loid Auckland and when General Sir Jasper Nicolls was Commander in Chief in India He served in the Mahatta way in 1842, which ended in the victors of Mohe Mahiatti war in 1843, which ended in the victories of Mahiatti war in 1843, which ended in the victories of Mahiatti proper and Punniar, fought on the same day, and during the campaign in 1845 46 in the battles of Sobraon and Aliwal He retired forty five years ago, and his since resided in Australia."

We gave an account of this I M S veteran's service in our

columns (I M G, April 1913, p 165)

-British Officers of the Indian Army -The Govern DRESS—British Officers of the Indian Army—The Govern ment of India have been pleased to sanction the adoption by British officers of the Indian Army and Indian Medical Service of the stand up collar pattern frock serge, universal, described in Dress Regulations for the Army, 1911, para graph 28, with the following modifications—

(i) It will be of serge of the colour authorised for the present serge frock in those units wearing other than blue—

(ii) Coloured collars and cuffs, piping, etc., will be retained in those units and corps for which these distinctions are at present authorised

at present authorised

2 Existing patterns may be retained until worn out when officers should provide themselves with the authorised pattern

THE undermentioned officers have been permitted by the Most Hon'ble the Secretary of State for India to retire from the service, subject to His Majesty's approval, with effect from the 30th June 1913

Colonel Herbert St Clarke Carruthers, Indian Medical

Service Madras

Lieutenant Colonel Henry Robert Woolbert, M.B., FRCS. Indian Medical Service, Bengal
Lieutenant Colonel John Bland Jameson, MB, Indian

Medical Service, Bombay

LIFUTENANT COLONEL MACKINTOSH ALEXANDEP THOMAS COLLIE MB, Indian Medical Service, Bombay, is permitted to retire from the service, subject to His Majesty's approval, with effect from the 30th June 1913

Colonel Carruthers was educated at Charing Closs Hospital and took the diploma of L R C P & S Edinburgh, in 1878 He entered the service on 30th September 1878 and served in the Afghan war of 1879 \$0 He was for a long time Medical Store keepen at Madras, and was appointed I G of Civil Hospitals, Burma, on 30th June 1908, he went on 7 months' leave on 9th November last and completed his tour of 5 years as an Administrative Officer on 29th June 1913 His place in Burma has been taken by Colonel A O Evans, who has been confirmed in this appointment

LIEUTENANT-COLONEL HFNRY WOOLBERT, MB FRCS, IMS, took the MB, London, in 1884, and the English FRCS, he entered the service on 1st October 1885, and has been for long in civil employ under the Foreign Department, he was put on the selected list on 1st April 1910. He went on leave out of India on 29th Maich 1912, he gets one of the compensation pensions of £100 for the current financial year, but would not have completed his 30 years' service till 23rd December 1913. The Army List assigns him no war service

LIEUTENANT COLONEL JOHN BLAND JAMESON, I MS, WB, entered the service on 11th March 1890 He served in the N W Frontier Miranzii Expedition of 1891 (medal and clasp), the Mohmand Expedition 1897 98, despitches, medal and clasp, and in the Tirah Expedition of 1897 98, and Bara Valley in December 1897 (clasp) He has been in civil employ, Bombay, for several years. An elder brother of his, Surgeon Major Jameson, died in India about 13 years ago

LIEUTENANT COLONEL M A T COLLIF IMS, was educated at Aberdeen and took the L R C P & S of Edinburgh in 1878 and M B, M S of Aberdeen He entered the service on 31st March 1883, and has been chiefly in civil employ in Bombay and was well known as Physician to St George's Hospital in Bombay He completed 30 years' service for pension on 29th June 1913

The following promotions are made, subject to His Majesty's approval —

Captains to be Majors, I M S

Frederick William Sumner, MB, F1 CS1,-27th Decem ber 1912

William Duncan Ritchie, M B John Kenneth Sprot Fleming Evelyn Charles Hepper George Charles Lovell Kerans Christopher Birdwood McConighy, M B John Beresford Christian -27th June 1913 Andrew Murphy M B
Frederick Troughton Thompson, M B
Laurence Percival Brassey, M L Colin Forbes Mair, M B Patrick Laurence O'Neill

CAPTAIN F W SUMNER therefore gets accelerated promotion, his first commission dates from 29th January 1901, and in a previous notification Captains G Fowler and S Bose of this batch were gazetted Majors with 6 months' accelera

Major J W Watson I us, an Agency Surgeon of the 2nd class, is granted privilege leave for two months and thirty days, with effect from the 23rd May 1913

CAPTAIN T S B WILLIAMS, I M S, an Agency Surgeon of the 2nd class, on return from leave 13 posted temporarily as Agency Surgeon in the Eastern States of Rajputana, with effect from the 23rd May 1913

THE following promotion is made, subject to His Majesty's approval -

Lieutenant to be Captain, I M S

Cecil George Howlett, M B, -29th January 1913 Captain Howlett's first commission is dated 29th January 1910, and he has recently been officiating in medical charge of 9th Bhopal Infantry

MAJOR F W SUMNER, I MS, Civil Surgeon, on completion of his training at Kasauli, was posted to Farrukhabad

PROFESSOR W J SIMPSON, (MG, left London in June for the East Coast of Africa, where he will conduct an inquiry in regard to plague and synitary matters generally During his absence Colonel W G King, CIE, INS (retd), will act for him

CAPTAIN A F BABONAU, I Ms., plague medical officer, Jhelum, was granted two months and 6 days' privilege lerve from 15th June 1913

CAPTAIN N M WILSON, IMS, made over charge of the duties of the Superintendent of the Dera Ghazi Khan District Jail to Senior Assistant Surgeon S Dalip Singh on the fore noon of the 2nd of June 1913

CAPTAIN A C KEATES, I MS, made over charge of the duties of the Superintendent of the Campbellpur District Jail to Assistant Surgeon Feroze iddin on the afternoon of the 31st of May 1913

MAJOR C A SPRAWSON, MD, I WS, has been appointed Professor of Medicine at King George's Medical College, Lucknow, with effect from 1st July 1913

CAPTAIN J H HOPTON, DSO, I WS, Joins the Bombay Civil Medical Department

LIEUTENANT COIONFL E V HUGO, FRCS, IMS, 18 granted furlough from 1st October 1913, for one year

CAPTAIN H H THORLURN, I MS, an officiating Agency Surgeon of the 2nd class, is posted as Agency Surgeon, Meshed, and ex officio Assistant to His Britannic Majesty's Consul General and Agent to the Government of India in Khorasan, with effect from the 1st June 1913

CAPTAIN F E WILSON, IMS, an officiating Agency Surgeon of the 2nd class, is granted privilege leave for three months, combined with furlough for one year and study leave for nine months, with effect from the 6th May 1913 under Aiticles 233 and 308 (b) of the Civil Service Regulations, and the Regulations prescribed in the Notification by the Government of India in the Army Depart ment, No 867, dated the 6th September, 1912.

No 1075, 1st class Military Sub Assistant Surgeon Zahir ud din Khan, Indian Subordinate Medical Service, is appointed to hold charge of the current duties of the office of Agency Surgeon, Meshed, in addition to his own duties, with effect from the 6th May 1913, and until further orders

MR E W MARSH, LRCP & S (Edin), DPH (Edin), who was appointed to be a Civil Assistant Suigeon on probation in the Burma Civil Medical Department, Notification No 315, dated the 9th October 1911, is confirmed in that appointment, with effect from the 21st October 1911

The following appointments and postings are ordered in the Civil Medical Department Burma—
Captain E A Walker, I Ms, is deputed to Kasauli for training in Clinical Bacteriology and Technique
Captain H W Farebrother, R A MC, is appointed to hold collateral charge of the Civil Singeoncy, Merkilla District, during the absence of Captain E A Walker, I MS

CAPTAIN F P Connor, FRCS, IMS, has been granted by His Majesty's Secretary of State for India, study leave from the 1st November 1912 to the 22nd April 1913, less seven day's excessive vacation

His Excellency the Governor of Bombay in Council is pleased to make the following appointments, vice Lieutenant Colonel M A T Collie, M B (Abdn ), C M , I M 5, 1etiring —

Lieutenant Colonel T Jackson, MB, BCh (RUI), IMS, to be Physician, St George's Hospital, Bombay

Major H Bennett, MB, CM, BSc (Edin), FRCS (E), IMS, to be Civil Surgeon, Ahmedabad

Major R W Anthony, MB, CM (Edin), FRCS (E), IMS, to be Civil Surgeon, Karachi

MAJOR A F W KING, I Ms, has been granted privilege leave of absence for two months and twenty eight days, with effect from the 19th June 1913, or the subsequent date of

His Excellency the Governor of Bombay in Council is pleased to appoint Captain M D A Kuicishi, I M S, to act as Civil Surgeon, Aden, in addition to his own duties, during the absence on leave of Major A F W King, Fres (E), I M S on pending further orders

CAPTAIN W E BRIERLEY, I MS, has been appointed a Specialist in Operative Surgery from 16th June

CAPTAIN P M REANIE, I M S, is appointed substantively Medical Officer of 32nd Sikhs

Captain F Stlvenson, 1 m s , 1s appointed to the medical charge of  $\rm 39th~C$  I. Horse

Owing, it is said, to the reduction of the garrison in S Africa only 5 Commissions were available at the R A M C Entrance Examination on 23rd July 1913

THE services of 2nd Class Assistant Surgeon J C Milburn, IS VD, we placed at the disposal of the Government of Burmy, for employment on plague duty, with effect from the 22nd March 1913

Major H Innes, I Ms. Civil Surgeon, Khasi and Jaintin Hills, Assam, is appointed to officiate as Civil Surgeon, first class with effect from the 8th May 1913, vice Major Neventon, I Ms. on leave

His Excellency the Governor of Bombry in Council 18 pleased to make the following appointments -

Licutenant Colonel S E Piall, M B, BS (I on), I M S, to act as Health Officer of the Port of Bombay during the absence on deputation of Licutenant Colonel W E Jennings, or decree of the Port of Bombay during the M D, C M (Edin), D P H (Dub), I M S, or pending further

Major J L Marjoribanks, WD, DPH (Edin), IMS, to act as Health Officer of the Port of Aden and Medical Officer European General Hospital, Aden, vice Lieutenant Colonel S E Prall, IWS, pending further orders

THE Civil Surgeon of Bahraich is ordered to hold visiting medical charge of the Gonda district, vice Major It F Burd, I VS, transferred to Bennies

LIEUTENANT COLONEL J K CLOSE, I M S, Civil Surgeon Allahabad, is placed on special duty at Naim Tal

LIEUTENANT COLONEL W YOUNG, IMS, Civil Suigeon, Cawnpole, is placed on special duty at Naim Tal

LIEUTENANT C G HOWLETT, INS, medical officer, 9th Bhopal Infantiy, is appointed to officiate, in addition to his military duties, as Cantonment Magistrate, Fyzabad, vice Major E G S Trotter, granted leave

THE civil assistant surgeon attached to the sadr dispensary, Gonda, to hold civil medical charge of that district, in addition to his other duties, vice Major R. F. Band, I.M. S., transferred to Benares

CAPTAIN N S SIMPSON, I MS, officer on plague duty, on completion of his training at Kasauli, is posted to the charge of the Lucknow cucle

CAPTAIN A F BABONAU, I MS, was transferred on 19th May to Ambala as Plague Medical Officer

LIEUTENANT T A HUGHES, I MS, was appointed Specialist in the Prevention of Disease, Bannu, with effect from 5th May 1913

CAPTAIN A J LEE, IMS, is appointed Specialist in Electrical Science, 6th (Poona) Division, from 30th April 1913

Caplain W R J Scroggie, i M s. was granted 2 years and 15 days' leave and is not due out till 28th May 11915

Major S A Russak, I Ms, got an extension of 5 months' study leave and is due out on 11th November 1913

MAJOR J J ROBB, I MS, returns from furlough on 25th

Major J W Cornwall, I MS, is due out from two years' leave on 9th September 1913

CAPTAIN A G McKendrick, I Ms, is not due out from furlough till 23rd February 1915

THE services of Captain F W. Cragg, INS, have been placed at the disposal of the Government of India, Education Department, for special duty

PRIVILEGE leave for three months, in combination with furlough for one year and study leave for six months, under Articles 233 (1), 260, 303 (1) and 308 (b) of the Civil Service Regulations and Rules 2 and 6 of the Study Leave Rules, was granted to Captain M F Reaney, MB, DPH, MRCS, LROP, IMS, Civil Surgeon, Akola, with effect from the 29th June 1913, or subsequent date

CAPTAIN F P CONNOR, IMS, FRCS, and Captain C A Gill IMS, DPH, have both taken the Diploma in Tropical Medicine and Hygiene of the Royal College of

LIEUTFNANT COLONEL W MOLESWORTH, IMS, IS due out from furlough on 14th December 1913

LIEUTENANT COLONEL F C PERFIRA, I MS, has gone on 14 months' leave and is not due out till June 1914

LIEUTENANT COLONEL R H ELLIOT, FRCS, IMS, 18 due out from combined leave on 18th November 1913

Major W J NIBLOCK, IMS, Professor of Surgery, Madras, is due out from 15 months' leave in December 1913

Major G B Harrison, IMS, was due out from long leave on 11th July 1913

MAJOR A MILLER, 1 M S, got one month's privilege leave in June 1913

THE services of Lieutenant Colonel C Duer, MB, FRCS, INS, are replaced at the disposal of the Government of Burma, with effect from the 1st May 1913

LIEUTENANT COLONEL C H JAMES, CIE, FRCS, IMS, is confirmed in the appointment of Civil Surgeon, Simla (West), with effect from the 1st May 1913

Major E O Thurston, MB, FRCS, IMS, is appointed to officiate as Professor of Surgery, Medical during the absence on leave of Lieutenant Colonel R Bud, MA O OLE NO FRCS IMS of until further orders. W. 1 O, CLE, YD, FRC,S, IMS, of until further orders.

The services of Lieutenant Colonel H B Melville, MB, IMS, are placed at the disposal of the Chief Commissioner of Delhi

Major Thomas Stodart, WD, is promoted to be Lieutenant Colonel, IMS, with effect from 30th January 1913, and he also receives accelerated promotion

THE King has approved of the confirmation of the commission of the undermentioned Lieutenant on probation of the Indian Medical Service, with effect from the 27th July 1912

Joidan Constantine John, M B

MILITARY ASSISTANT SURGEON MILL was appointed Civil Surgeon of Sambalpur, rice Major A Sanderson, I MS, tiansferied

On relief by Captain W J Fraser, MB, FRCS, IMS, on return from privilege leave, senior grade Civil Assistant Surgeon Lakshmi Narayan Chaudhir, LM & S, Officiating Civil Surgeon, Chlindwara, is reposted to the Main Dis pengary, Sangor

ON relief by Civil Assistant Surgeon Mulinmmad Ali, L M & S, Major V H Roberts, FRCS, IMS, Officiating Civil Surgeon, Seoni, is transferred in the same capacity to

ON relief by Major V H Roberts, PRCS, IMS, Major J C S Oaley, PPCS, MRCS, LRCP, DTM, IMS, Civil Surgeon, Chanda, is transferred to Amiaoti

ON telief by Major J C S Ovley, TRCS, MRCS, TRCP, DFM, IMS, Captum J M A Maemillan, MA, MB, ChB, TRCS, LRCP, IMS, Civil Surgeon, Amraoti, is transferred to Hoshangabad

ON relief by Captain J M A Macmillan, MA, MP, ChB, FRCS, LRCP, IMS, 1st grade Civil Assistant Surgeon Bipin Behari Gupta, LM & S, officiating Civil Surgeon, Hoshangabad, is reposted to the Main Dispensary, Hoshangabad

ON return from the leave granted him by Orders No 578, dated the 14th March 1912, and No 276, dated the 3rd February 1913, Major G Fowler, LRCP & S. DPH, IMS, Civil Surgeon, is posted to Akola

MATOR D H F COWIN, I M S, Civil Surgeon, 2nd class, is appointed Medical Adviser to the Patiala State, with effect from the date on which he assumed charge of his duties, acce Lieutenant Colonel C H James, I M S, transferred

Major H R NUTT, I MS, has been granted an extension of leave for one month and 13 days up to 31st October 1913

MATOR H W ILLIUS, IMS, officiating Civil Surgeon, Rue Baieli, is deputed to Kusuli for training in clinical bacteriology and technique

THE services of Captain H C Brown, IMS, officer on special duty, are replaced at the disposal of the Government of India, Department of Education, with effect from the date on which he relinquishes charge of his present duties

THE Civil Surgeon, Lucknow, to hold visiting medical charge of the Rae Bareli district, vice Major H W Illius, INS, deputed to Kaszuli

MR H G H MUNROWD, officiating Civil Suigeon, Garo Hills, is vested with powers equivalent to those of a Magistrate of the third class as defined in the Code of Criminal Procedure (Act V of 1898) and with the powers of an Assistant Commissioner under the rules for the administration of the Garo Hills district prescribed under section 6 of the Scheduled Districts Act, XIV of 1874, to be exercised within the Garo Hills district within the Garo Hills district

In supersession of Government Notification No 4364, dated In supersession of Government Notification No. 4364, dated the 10th June 1913, His Excellency the Governor in Council is pleased to appoint Major J. L. Marjoribanks, M.D. D.P.H. (Edin.), I.M.S., to act as Health Officer of the Port of Bombay, during the absence on deputation of Lieutenant Colonel W. E. Jennings, M.D., C.M. (Edin.), D.P.H. (Dub.), I.M.S., or pending further orders

MR FRANK RODRIGUES, IN & S., has been appointed as a temporary Civil Assistant Surgeon with effect from the 22nd May 1913.

Major W Gien Liston, (IF, MD, Dill, 145) Duector, Bombay Buteriological Laboratory, has been granted privilege leave of absence for two months and fourteen days, with effect from the 15th of June 1913, and placed on deputation for a period of a fortught after the expiry of his privilege leave

HIS Excellency the Governor in Council is pleased to appoint Captain T H Gloster, ME, DIH, IMS, to act as Director, Bombay Bacteriological Laboratory, during the absence of Major W Glen Liston, (IE, MD, DPH, IMS, or pending further orders

His Excellency the Governor in Council is pleased to appoint Captain A J V Betts, MB (Lond), IMS, to do duty as Deputy Sanitary Commissioner, Western Registration District, 1000 Major J L Marjoribanks, MD, DPH (Edin), IMS, as a temporary measure, pending further orders

The following promotions and reversions are ordered in the Civil Medical Department, Buima—
Major F A L Hammond, I M S First Class Civil Surgeon, sub pro tem, is appointed to officiate as First Class Civil Surgeon with effect from the 1st May 1913, the date on which the services of Lieutenant-Colonel O Duei, I M S, on leave, were replaced at the disposal on the Government of Buima Lieutenant Colonel J Penny, I M S, officiating First Class Civil Surgeon, on combined leave, to revert to his appoint ment as Second Class Civil Surgeon, with effect from the 23rd January 1913, on the exprise of the privilege leave portion of his leave

Major P Dee, INS, who was appointed to officiate as a First Class Civil Surgeon in this department Notification No. 30, dated the 17th January 1913, to continue to officiate as a First Class Civil Surgeon in place of Lieutenant Coloncl

as a First Class Civil Surgeon in place of Lieutenant Colonel T W Stewart I MS, on leave
Major A Fenton, I MS, who was appointed to officiate as a First Class Civil Surgeon in this department Notification No 31, dated the 17th January 1913, up to the 6th January 1913, to continue to officiate as a First Class Civil Surgeon up to the 22nd January 1913, in place of Lieutenant Colonel J Penny, I MS, on privilege leave, and from the 23rd January 1913, in place of Lieutenant-Colonel Castor, V.S. on leave

23rd January 1913, in place of Lieutenant-Colonic Civil, I VS, on leave
Major F V O Beit, I VS, to officiate as a First Class
Civil Surgeon with effect from the 25th December 1912 to
the 6th January 1913, both days included, in place of
Lieutenant Celonel J Penny, I VS, on leave

## Motice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to The Editor, The Indian Medical Gazette, c/o Messis Thacker, Spink & Co, Calcutta

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Annual Subscriptions to "The Indian Medical Gazette," Rs 12, including postage, in India Rs 14, including postage, abi oad

### BOOKS, REPORTS, &c, RECEIVED -

Murphy's Surgical Climes, Vol 2, Part 2 W B Saunders & Co Hornsby's The Modern Hospital (Price 30t) W B Saunders & Co Thornes The Nanheim Treatment of Heart Diseases Ballicre, Tindail & Cov

& Cov
Cables Golden Rules of Diagnosis and Treatment C V Moshy Co
Warwick and Tunstall's First Aid (Lighth Fin) I Wright & Son
Haffkine's Inoculation against Cholora
Report of Malaria Committee, Vadras
Smitary Commissioner's Report, Indra
Vaccine Therapy O V Mosby Co
Jones Tonic Medication H K Jewis
D Walsh' Diseases of the Skin Baillière, Tindall & Cox (67)

## LETTERS, COMMUNICATIONS, &c, RECEIVED FROM --

Major Corrie Hudson, IMS DSO, London Lt Col L Royers, CIE, IMS, Calcutta, Major OG Lalor, IMS, Rangoon, Major A Cochrane, IMS, Naini Tal, Dr Macnamara, rrcs, Najra, Dr Muir, Kalna, Lt. Col B Lane, IMS, Nagpur Capt Berkeley Hill IMS, Lahore, Capt V Nesfield, Agra, Capt Overbeck-Wright IMS, Agra, Dr Valentine, Assam, It-Col Newman, IMS, Alipore, Dr Bulloch, Travancare

## Original Articles.

## IODINE AS AN AID TO ASEPTIC VACCINATION

By E E WATERS, M D., M R C P (Lond ), MAJO , I M.s

THOSE of us who are stationed in the Mofussil know the difficulties and drawbacks of widespread vaccination—as performed by the licensed vaccination. We have all seen on a chilly cold weather morning, the lines of whimpering children collected at dawn by the zealous vaccinator and policeman in time for the salid's inspection at ten or eleven o clock.

In spite of much instruction and many warnings duty arms are much commoner than they should be The recognised antiseptic method is not a success it is too cumbrous and trouble-some. The routine prescribed, so far as I remember it, is something as follows. The child's arm is to be washed with soap and water, then rubbed vigorously with the perchloride wool provided, and finally washed again with water or soap and water. The lancet is then to be sterilised and the operation performed

I do not think this complicated procedure is ever carried out. It is too much to expect for the modest two-anna fee and if the perchloride be not thoroughly washed away, failure of the vaccination frequently occurs with loss of money and reputation to the vaccinator.

Personally, in jails and similar places, I have abandoned the perchloride wool method as unsatisfactory and until lately depended on soap and water

The ordinary operation of vaccination, as actually performed proceeds in this fashion. The child is brought to the vaccinator who is armed with lancet, tube of lymph and so on The child's aim is rubbed with the hand and then vaccination performed in the usual way. In spite of this violation of every aseptic rule, the results as a whole, are wonderfully good and though bad aims do occur, it is impossible to say whether they are due to sepsis inoculated at the time of vaccination or to the various domestic remedies applied to the arm shortly afterwards.

In searching for means to improve this technique it occured to me to try iodine as used surgically with most satisfactory results

My practice now is as follows—The aim is painted with functure of iodine and at the same time the vaccinator, as he holds the arm, paints his left thumb nail. The lancet blade is dipped in the functure and allowed to dry. A sufficient

quantity of lyingh is extracted from the tube with the now sterile knife and either placed directly on the iodined aim or on the left thumb nail. Vaccination is then performed through the iodined skin and no diessing is applied.

I have used this method now in some 300 cases with the following results —

I Adults in Jail Primary cases 10

Vaccinated 10 cases in 4 points

4-Points Successful 5
3-,, , 2
2-,, , 0
1-,, , 1

Unsuccessful 1 Unknown 1

Re-vaccinations Jail cases adults

II In the town of Chinsuiah the following cases were done by the rodine method, mostly of course in children —

Primary cases Six points 57 cases
Successful 6 points

" 5 "
" 4 "

" 6

Primary Cases Four points 41 cases
Successful 4 points . 39
" 3 " 2 " 2

41

No failures

Re-vaccination 48 cases, in 2 points

Successful 2 points

" 1 " ... 6

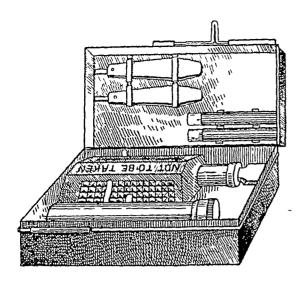
Failed 23

78

I must admit that I had no opportunity of checking the results in the Chinsurah town cases but I have no reason to doubt their substantial accuracy. I have seen no sore arms in the juil, and the municipal vaccinators, who have many years' experience, assure me that the rodine method is in all respects satisfactory.

I think that the method is of sufficient interest to warrant a further and more extended

trial by the licensed vaccinators in the coming working season



For the convenience of the vaccinator, I have had small tin boxes made, containing in clips, an ounce bottle of tincture of rodine, two lancets, two tubes of lymph, and two camel-han brushes These boxes—one of which is illustrated above—are cheap and convenient They are being manufactured by Messis. Smith, Stanisticet & Co, of Calcutta

## RELAPSING FEVER IN BULANDSHAHR DISTRICT, U P, 1912—1913.

BY R SIEEN, MD,

MAJOR, IMS,

Civil Surgeon

AND

R S TOWNSEND,

CAPTAIN, IMS,

Officer in Charge, Travelling Dispensaries

RELAPSING Fever has been present in epidemic form during the past eighteen months in several districts in the North-West of the United Provinces Muzaffarnagar, Meerut and Bulandshahi are the three districts in which the disease has been most prevalent. As many of the clinical features of the disease differ considerably from the text-book descriptions, and also from the reports of similar infections in India and other parts of the world, the following notes of the epidemic as it has existed in Bulandshahi may be of interest

Unfortunately for clinical purposes the disease prevailed for the most part in outlying villages of the district, and this report is, therefore, incomplete in many respects. However the Assistant and Sub-Assistant Surgeons of the Branch and Travelling Dispensaries took a keen interest in the epidemic, and under instructions full and reliable reports, and numerous blood films have

been sent to us Our special thanks are due to Assistant Surgeon Rai G P Raha Sahib and Sub-Assistant Surgeon C S Sharma, for then help in staining and examining blood slides at head-quarters

History — Notes left by previous Civil Surgeons of this district show that in 1908 there occurred three cases of Relapsing Fever in the Jail and two in the Police Hospital — In 1909 five cases in Jail and two in Police Hospital — In 1910 mil — In 1911 three cases in Police Hospital. — In 1912 mil — As routine blood examination was the rule in these hospitals, it is difficult to believe that the disease was at all widespread in the district during these years

Present Epidemic—During April, May and June, 1912, three severe outbreaks of "Fever' with high mortality were reported. The three villages attacked were many miles apart and had no apparent connection with each other. The villagers themselves recognized that the disease was not plague, and not ordinary fever. There was no rat mortality and the patients did not develop bubbes. The examination of blood films, showing numerous spirochætes indistinguishable morphologically from the Spirochæte Obermenr, set the diagnosis at rest

During September, October and November no further outbreaks were reported. It seems certain, however, that the disease had existed throughout this period, as Captain Bisset, in s, Deputy Sanitary Commissioner, found several infected villages during his tour early in December Since December 1912 then, or a little earlier, Relapsing Fever has prevailed in epidemic form throughout the northern part of the district, and in addition isolated outbreaks have occurred in the other parts.

Altogether the disease has been investigated and proved to exist in 65 villages. In one Thana, 20 villages out of a total of 85 were affected.

Etrology—Piedisposing causes are undoubtedly dut, poverty and insanitary surroundings. In nearly all the cases investigated the disease was found among the lower castes, Chamars, Ahenas, Mewatis, and the poorer members of other classes

Several areas showed extreme conditions of filth and overcrowding

Taking for granted that the Spirochata Oberment is the cause of the disease, it is not certain in what manner the individual becomes infected. There is good reason, however, to suspect the body-louse (Pediculus Corporis), although no experiments have yet been made by us to connect it directly with the transmission of the disease. The body-louse has been frequently found on infected individuals, while bed bugs were frequently absent. During the present y are there have been five cases of Relapsing. Fe er admitted to the Jail and Police Hospitals.

### RELAPSING FEVER IN BULANDSHAHR DISTRICT, U P, 1912—1913

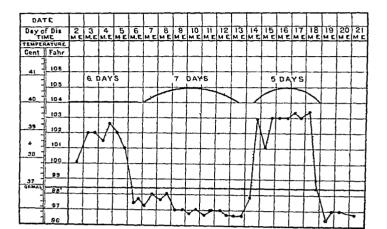
BY MAJOR R STEEN, IMS, MD.,

Civil Surgeon,

AND

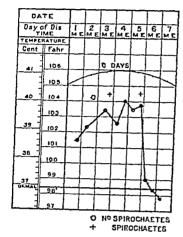
CAPTAIN R. S TOWNSEND, IMS, Officer in Charge, Travelling Dispensaries

### CHART I



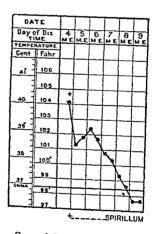
Typical attack of Fever with one relapse

### CHART II



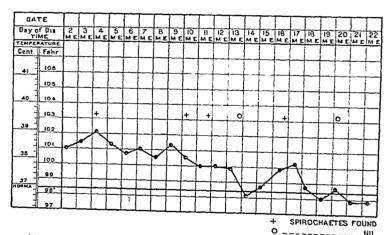
A boy who after a severe first attack had no 2nd attack up to 20th day

### CHART III



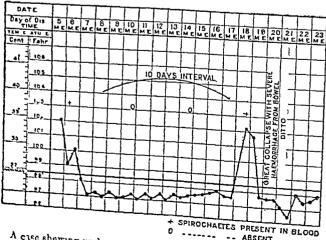
Case of 1st attack falling by Lysis

### CHART IV



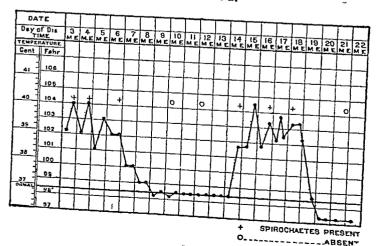
A type not uncommon in old people where it is difficult to define the apyrexial people. This man was so weak that he did not leave his charpoy for another week.

### CHART V



A case showing preliminary fall followed by secondary rise and

### CHART VI.



A case illustrating fall by Lysis and only 5 days' interval

These were all admitted direct from infected areas, and on each individual, body-lice were present but no bed bugs Measures to prevent the spread of the disease consisted in segregating the patients, and were chiefly directed to the destroying of body parasites. All clothing and hedding were immediately changed and disinfected. Whether due to these measures or not, it is interesting to note that no case occurred in either hospital from contact with these Whereas in the 1908 outlineak, where apparently segregation only was carried out, six contacts developed Relapsing Fever from an infected prisoner admitted to the Jail another patient in hospital fell ill, next the hospital cook, third the hospital sweeper, fourth a sick attendant, fifth a police constable on guardover the camp, and lastly, a comrade of the latter in the police lines It is also recorded that in all these cases numerous bed bugs and body-lice were found

Whatever the active agent carrying the disease from one individual to another may be, the disease is intensely infectiou. It spreads rapidly to other members of a household, and it is the rule to find three to four or more cases in each infected house. In one instance all eight members of one family fell ill. The outhreak, too, is apt to confine itself to one section of the community. In these respects Relapsing Fever differs markedly from Plague Epidemics, in which one case only in a house is not uncommon, and all classes may be attacked.

It seems certain that the infection is carried from place to place by man and his belongings The following instances are typical of the history of an outbreak of Relapsing Fever -- (A) An Aherm went to visit his father-in-law in whose house were cases of the disease. On returning to his home he developed fever few days later two other members of the same household contracted the disease, and from this focus the epidemic spread from house to house over the Aherra community. (B) A Chamar from an infected house nent to visit some telations 20 miles anay He died of the disease, and a very virulent outbreak occurred among the ('hamai's, which caused 18 seizmes with 13 deaths.

Incubation Period—From various observations the period of incubation appears to be four
to eight days. Several cases were noted in which
the infected individual had stayed one night only
in an infected house. A Chamar went to the house
of a relative 30 miles away, stayed one night and
teturned to his home. He developed fever on
the 4th day. His uncle and brother hiving in
the same house developed the disease five days

One of us (R S T) contracted the disease on the 7th day after possible infection, and a thalassic attached to a Travelling Dispensary caught it on the 6th day.

Chemical Aspects—Onset is in our experience usually sudden, without rigor or period of malaise. The temperature rurs up rapidly to 103°—104,° and there are all the usual symptoms accompanying high fever during the next day or two. Prostration is usually extreme from the outset, and delirium sometimes so violent as to require restraint, is often an early symptom. Headache is sometimes severe, but pains in other parts of the body are more frequent.

Temperature Curre—The first attack lasts, as a rule, in our opinion eight days. It may be a short as five days, or prolonged to ten days. Fever varies between 102° and 104° being higher in the evening. The fall occurs nearly always by crisis, accompanied frequently by great collapse. Death occurs frequently at this period. Termination by lysis is by no means uncommon.

The interval between the first and second attacks varies being in some cases five days, and in others eight to ten or up to fourteen days. During this period the patient rapidly improves and may even return to work. In most cases, however, he is left extremely weak and ill, and is confined to bed throughout the apprexial period Temperature is usually subnormal for the first few days of the interval, especially if the febrile stage has terminated by crisis. In these cases when the first stage ends by lysis the interval appears to be of shorter duration, than when the termination is by crisis. Charts 5 and 6 illustrate this well.

1st Relapse.—About 14 per cent of our cases showed no relapse. As a rule, however, fever returned suddenly, without rigor, or other marked prodromal symptoms. The relapse is not usually so severe as the first attack, nor is the crisis so dangerous. The temperature remains high  $102^{\circ}-104^{\circ}$  and falls by crisis on 5th or 6th day, or it may be as short as two to three days.

From calculations made from fairly reliable figures it appears that of 140 cases, twenty (14%) had no relapse, 113 (81%) had one relapse, and seven (5%) had two relapses

None of our temperature charts show more than one relapse. Although the above may be taken as the normal course of the fever yet there are cases where there is apparently no interval.

Chart No 4 shows a case where the temperature did not reach normal till the 21st day, except for a few hours on the 14th day. Thus type, in our opinion, occurs chiefly in old people and would correspond to the typhoid form described by some writers. Then, again, the fever may show the stepladder use, as in typhoid fever. Two cases of an ambulatory type were seen at the Sadi Hospital. The termination by lysis has been already noticed.

The following are the chief symptoms met

Digestive System.—The tongue at the outset is usually clean and moist but rapidly becomes

funed and in severe cases may become dry, fissured and covered with duty brown and blackish Constination has been the rule in our series of cases especially when the toxemia was extreme often accompanying tympanites Diairhoea has only been noted in 5 cases out of It is however, frequently associated with the cusis

of greenish bile Vomiting especially Hiccough is a frequent symptom common, jaundice in various degrees is present in the majority of cases at some stage of the Tenderness over the liver and spleen attack areas is almost a constant symptom especially about the 4th-5th days of the first attack Enlargement of spleen is very common sometimes being as much as two inches below costal margin This enlargement is quite transient and disappears soon after the temperature becomes normal

Parotitis was present in about 7 per cent of our In all cases we have found both glands Half of the cases ended in resolution the remainder suppurated. This we think is a very serious complication, and about one-third of the cases died

The spinochætes have been found in large numbers in the serum drawn off by syringe from After suppuration only an inflamed parotid The cervical glands have pus cocci were found also become enlarged in a few cases

Circulatory System — The pulse has no charactenstics but varies according to the temperature and amount of toxemia present

Great collapse and heart failure are common at Hæmorrhage from mucous membranes is very frequent. In 140 cases epistaxis Hæmatemesis occurred in occurred in 48 (34%)

These symptoms, however seem to vary considerably as in another small series of five cases two had marked hæmorrhagic diarrhæa and were diagnosed as dysentery, until the blood examination cleared up the diagnosis Hæmoptysis has not been noted in any of our cases, though when pneumonia was a complication, justy sputum was present

Respiratory System —Pneumonia was the only It was usually common complication met with of the lobal type though severe broncho-pneu-The sputum in this monia has also been noted usually yellow and form of pneumonia was It occurred as a rule slightly tinged with blood towards the end of the first attack, and was a very fatal complication In one village out of 6 Sprochætes have not been found cases, 3 died in the sputum

Nervous System —High delinum followed by great prostration was very characteristic of a Headache and paurs in various severe infection parts of the body were frequently present. Two

cases in the same village, while delinious, jumped down a well and were drowned

Retention of mine was noted in one case

Mortality — The mortality in the endemic under discussion has varied greatly in different outbreaks and at different times, during the same Thus in one village, out of the first 8 cases, 6 died. out of the next 10, 2 died. and the succeeding 10, all recovered all reports confirmed this fact, it that the earlier cases suffered from a more virulent infection often with a mortality of 75-80 In another village a Sub-Assistant per cent Surgeon reported 18 cases with 13 deaths (72%), shortly after the importation of an infected case In another outbreak in Bulandshahi City, there were 5 cases with no deaths A careful collection of information from all parts of the district gave a total of 744 cases and 197 deaths (=26  $\frac{5}{6}$ ) Another and smaller series of figures mortality gave a total of 140 seizures and 76 deaths In our opinion the mortality is about (=54.3%)The most critical period 30 per cent of all cases of the disease appears to be just before or after, the Out of 174 deaths cusis of the original attack 6 were reported to have died during or after, the first relapse, and one after the second relapse The remainder succumbed during the first attack or its crisis

Diagnosis - After some experience the disease could generally be diagnosed from clinical symptoms alone, and the history of the outbreak. high temperature with The sudden onset great prostration, or extreme delinium, especially if associated with epistaxis or other hemorrhage or jaundice were very characteristic

When possible however blood films stained by Leishmann's stain were examined. During the febrile periods spirochætes were found in nearly

every field

We do not propose to discuss the differential diagnosis in defail, but we have seen Relapsing Fever cases diagnosed as (1) Plague (2) Pneumonia, (3) Dengue (4) Dysentery and, of cour-e (5) Malaria Fever Indeed in isolated, or sporadic cases, without a microscopic evaluination the diagnosis must be a doubtful one

The fact that there may be 8 or 9 cases at one time in a single household is characteristic of this Its limitation to one particular quarter, or to a few houses in one village is very marked

Treatment -We know of no drug that will cut short an attack or prevent a relapse and its allied compounds however have not yet We have no doubt but that treatbeen tried ment on general lines has been efficacious in saving many lives particularly at the period- of Experience, too, has proved the value of full doses of blue pill or calomel in those cases frequently met with in which toxemia and con-tipation were associated.

Conclusion —A study of the limited literature at our disposal shows that the symptoms, and course of the disease as we have encountered it, correspond closely to the descriptions of "Bombay Relapsing Fever," as given in the transactions of the Bombay Medical Congress, 1909. The 6 charts attached illustrate the principal types of fever met with

Chart No I is the commonest type

Chart No II illustrates a case in which there was no relapse

Chart No  $^{\circ}$  III shows that the temperature has fallen by lysis

Chart No IV illustrates a temperature lasting for 21 days without interval

Chart No V shows a short relapse followed by great prostration and severe hæmorrhage from the bowel

Chart No  $\,$  VI shows fall by lysis with an interval of 5 days only

### NOTE OF AN INQUIRY INTO MALARIA AND MOSQUITOES IN THE KASHMIR VALLEY

BY J R ADIL, LT. COL, WB (Lond),

AND

MRS ADIL

(Abstract of a Contribution to the last Malaria Conference, November 1912)

THE writers carried out a short inquiry into the prevalence of malaria and mosquitoes in that portion of the Kashmir Valley which includes Simagar and Ganderbal, an area about 20 miles by 10

They have not given figures of admissions, as they do not consider such statistics very helpful, but they quote the opinion of present-day practitioners thus—practically speaking, there is no malaria in Simagar and there are no anophelines, and cases of malaria which are met with in the capital about July, August and September are imported from the lowlands. The writers' observations during 1912 from April to October generally confirm this belief, although completeness of the report is not claimed.

The paper opens with general remarks as to climate and condition of the people. The Vale runs couth-east to north-west, is about 84 miles long and 25 miles wide, and has an average altitude of 6,000 ft. It lies in a hollow of a complex of mountains reaching from the Punjab Plains to the Himalayan Giants of the north, such as Nanga Parbat. 26 900 ft, and is drained by the River Jhelum. The average temperature in lanuary is 33° and in July 74°. The drainal range of temperature is from 14° to 28°. The average rainfall for the year is 27 inches. July, lugust and September being the wettest months and accounting for half the total amount. Rice

is the principal grain and is cultivated up to an altitude of 7,000 ft Imagation is easy inhabitants, of whom three-fourths are Mahomedans, are well-nourished and robust, and do not suggest being malana-stricken, but the writers were often struck, when film-taking, with the poor physique and timid faces of young boys compared with the plumpness and vivacity of young girls The boatmen class seem to keep a liberal table-fowls, ducks, geese, fish, vegetables, etc, being ordinary fare Dr. Neve, in describing the flourishing condition of the peasantry, says they are "exceedingly well off"

As to prevalence of malaria, the same authority says it is much a matter of altitude, the lower you go down from the capital the more the malaria, thus in U11 and Domel malais s not uncommonly met with, in Punch, a good deal lower down, there is more, and so on 101 children in the region of the Chenar Bagh were found to be free from parasites belonged almost enturely to the manjee class August and September. 79 more children from the Sonwar Bagh (cultivator class chiefly) were examined with negative result. Among 180 children, therefore, the Endemic Index was nil. Adult cases complaining of fever were examined in the Jail, Mission Hospital, and State Hospital, Srınagar, ın August and September In the first, prophylactic quinine was given out as in the Punjab Jails, and treatment with quinine at once Of 18 cases in hospital only one had parasites (very large spleen and crescents) and he was a man from Domel, and so a lowlander the Mission Hospital, Di Neve remarked on the comparative rareness of malaria that year cases in one day applying for admission (who had not yet had quinine) were all found infected. No 1, Kashmii. had been to the Delhi Durbar, had fever there for the first time and several attacks since, spleen not enlarged The film was crammed with B T rings and bizaire. No 2 of Drang, near Jummoo, fever two years, anæmic, spleen enormous, one ring and one crescent in 5 minutes No 3 of Smagan, been lately to Kaıma (lowlands), first attack began 10 days ago, film full of M T 11ngs These cases illustrate the importation of malaria Similarly in the State Hospital, imported cases with parasites were observed

Thus the opinion held by the profession was amply borne out by blood examinations—namely, that there is no evidence of endemic malana in Srinagai, and that cases of the disease met with in that city are those imported from lower altitudes,

With regard to the prevalence of anophelines, from April 24th to October 26th (1912), diligent search was made for both adults and larvæ in the neighbourhood of Srinagar and Ganderbal. Overflows from the Jhelum River and Canals, the Dal Lake irrigation channels, wells village

collections, borrow pits, etc., were continuously examined—all with only a fraction of anopheline At the Nasım Bagh on the Dal Lake 1e-ult (which is a perfect paradise of aquatic life) two adult A Barranensis were captured while flying about round the observers in the dusk were seen but subsequent careful search for adults and larve was entirely negative Sind Valley, 4 miles above Ganderbal four anopheline larvæ were taken, August which bred out Neo Willmon These were found by the side of a rice field near the road, in a long ditch which was fed by a small irrigating channel, and had grassy edges. This is the usual kind of breeding ground of this species which has a very wide distribution in the Ilimalayas

As to Culicine, probably every traveller in Kashmi takes care to avoid the mitating swarms in and about the Amchar maish during the months of July and August Stegomyia was not met with Thus it appears to the writers that in Srinagar is a case of no anophelinesno malana, or rather—almost no anophelines almost no malaria Anophelines are there, and of the species which is known to be a natural carrier, but they are in very small numbers Malaria is there, and patients even have gametes in the peripheral blood, but they are in very small How is it the disease is so confined? numbers There must be some conditions adverse to anophelines and to the parasites, such as cold, altitude, distance from the plains, and the iobust, flourishing condition of the people, and it seems permissible to predict that the chances of an Anyway, the state of things epidemic are remote seems to point to two measures for combating malaria—keep down your anopheline carriers by anti-mosquito measures, and keep down your malana by quinine And that is the general In this connection, an interesting policy now comparative statement is given of malarial conditions in the three valleys, Kangia Kulu, Kashmu-

		Kuru '	1	
	Kangra Valley			K ishmii Valley
Average height Chief cultiva	4,000	3,000 (app)	7,000 (app )	6,000
tion Irrigation Rainfall Temperature Anophelines . Endemic Index	Rice Cinals 70 68 Very abundant	Rice Canals 40 65 Abund ant. 81	Rice Canals 30 55 Not abundant Nul	Rice Canals 27 54 Very scarce
"Malarial season"  Geographical conditions	Reported bad (See map)	Rather bad	Nil	Nil

(upp=approximately)

Map I—A shows the arrangement of mountains and rivers with regard to the three valleys, and speaks for itself The Kashmu Valley 15 separated from the plans by about 100 miles and is surrounded by a maze of lofty mountains while the other two valleys are not so isolated Great Himalaya Range is seen coming up from It runs along to Nanga Parbat and gives off two big lofty branches the Daulodhar Rauge lunning to the south of Kashmir, and the Pil Panjal, 30 miles wide 15 000 feet high and often snow covered entirely, in the same direction, separating Kashmu from the plans Section B shows the direct climb from the plains to Kashmii is from 800 feet to 15 000 feet in 100 miles while the direct distance from the plains to the Kangia and Kulu Valleys is only about 28 miles There is thus seen a marked contrast in geographical conditions which probably have a direct bearing on the prevalence of anophelines and this is illustrated further in the two divisions of the Kulu Valley

A thorough systematic investigation is still required, and it is hoped that this preliminary inquiry will afford a starting point for some few of the 3,000 annual holiday-makers who may be on the look-out for an agreeable pastime

The full report of the Paper may be found in the Transactions of the Malaria Committee

# OF MALARIA IN THE TOWN OF ARAMBAGH, HOOGHLY DISTRICT

BY SAROSI LAL SARKAR

ASST SURGEON,

Howah General Hospital

I SPLNI a large portion of my leasure during my service at Arambagh with the help of some assistants in making a spleen census of the children between 2 and 12 years of age. This has been done in as thorough and exhaustive a manner as possible throughout the different wards of the Municipality. The objects of the investigation was mainly the following —

Importance of the question of the relative liability of the Hindus and Mahomedans as well as different Hindu castes to Malarial infection

For the last few years minds of the Bengalee politicians and thinkers appear to have been much exercised over the question whether in Bengal proper the Mahomedans are not steadily gaining from year to year a numerical preponderance over the Hindu population. According to the censular to 1872, there were in that year, a little over 17,100 000 Hindus and nearly 16 700 000 Mahomedans in Bengal proper. Thus, it will be seen that in that year there were about 4 lacs of

Hindus more than the Mahomedan population But this Hindu majority has been replaced in the subsequent census reports by gradually increasing Mahomedan majority. In the census figures for the year 1881 there were 18 396,117 Mahomedans against 18,069 352 Hindus. In the census figures for the year 1891 there were 18 975,978. Hindus and 20,174 593 Mahomedans. In the census figures for the year 1901, there were 20,191,082 Hindus and 21,954,977 Mahomedans.

The subject of this decline of the Hindu population in Bengal has been discussed threadbare in the magazines and newspapers of Bengal and the view of Babu Kishori Lal Sukai Mili Bil., Vakil, High Court, on the subject is generally accepted. Those who may feel any interest in the subject may read his book. "A Dying Race—How Dying," which is being sold by Messis Thacker, Spink and Company, Calcutta. His views can be summarised as follows and is here given in his words as far as possible.

(3) That if this division in East Bengal, possessing peculial advantages and mostly in the occupations of Mahomedans, be excluded from calculation it will be found that mainly owing to the malarial epidemic, the Hindus and the Mahomedans are actually sailing together down the stream of extinction at the same rate

So it will be seen that the explanation of the gradual Mahomedan preponderance over the Hindus lies in the fact that Hindu populations are being wiped away at a greater rate by the malanal epidemic than the Mahomedan population of Bengal proper as a whole What has been said regarding the Mahomedan population of Bengal holds good regarding many lower Hindu castes and tribes as will be seen from the Hence the determination of following table relative infection to malaria of the Hindus and Mahomedans, as well as of different Hindu castes appeared to me a matter of great practical *importance* 

Caste, tribe or race.		P+rsons				PERCENTAGE OF VARIATION INCREASE (1) OR DECREASE (d)			
	1901	1891	1891 1881		1891—1901	1881—1891	1872—1881	of net variation	
Gandh Banik	139,500	122,752		140,324	(1) 13 64			(1) 0 58	
Bania	209,521	333,387	904,526	199,691	(d) 7 15	(d) 63 14	(1) 352 96	(1) 4 92	
Sadgop	578,473	571,335	55,717	658,777	(1) 1 24	(1) 2 39	(d) 15 30	(d) 13 80	
Malakai	132,102	151,962	216,108	153,376	(d) 13 06	(d) 29 68	(1) 40 90	(d) 13 87	
Sonar	215,517	273,293	241,322	253,313	(d) 10 16	(1) 13 24	(d) 4 73	(d) 307	
Chuttar (Sutradhar)	172,200	175,554		164,422	(d) 191	,		(1) 4 73	
Jogi and Jugi	374,906	106,473	340,342	384,324	(d) 7 76	(1) 19 93	(d) 11 18	(d) 245	
Chamar and Muchi	1,626,737	1,497,267	1,408,037	1,177,234	(1) 8 65	(1) 6 33	(1) 19 60	(1) 38 18	
Bagdı	1,032,063	804,960	756,870	695,259	(1) 28 21	(1) 6 35	(1) 8 86	(1) 48 44	
Namasudia	1,860,911	1,768,119	1,576,076	1,503,518	(1) 5 19		(1) 482	(1) 23 77	
Maloe	227,985	88,443	19,454	9,419	(1) 157 70	1	(1) 106.60	(1) 2321 25	

(1) Owing to the prevalence of malaria in Bengal both the Hindu and Mahomedan rate of increase of population in Bengal proper are falling off gradually as compared with the rate of increase for the whole Indian population

(2) That as between the Hindu section and the Mahomedan section, relatively the latter is falling off at a somewhat less accelerated speed as compared with the former on the average of the 4 divisions of Bengal because in one of these divisions, viz. East Bengal, which is inhabited in the mostly by Mahomedans there is comparatively an absence of malaria and the economic conditions are also in every way favourable it being the fact.

The Statistics of death are probably unreliable for Arambagh

From the statistics given below of fever death per mille of the towns of Hooghly District as well as of principal thanas of Arambagh Sub-Division, the town of Arambagh will appear to be one of the healthiest places in Hooghly District. But again from the table of infant mortality—given below—we have to modify the conclusion. I am inclined to think that the explanation of contradiction lies in the fact that like many other towns, the death figures of Arambagh are not reported properly, a fact which I can testify from personal experience.

<i>!!O</i> 'Г	NS.	1910

10% 58, 1910					
Towns	Ferer death rate per mille				
Hooghly and Chinsulah Bansbaria Alambagh Serampole Uttal palah Kotlung Baidyabati Bhadiaswal	18 12 18 00 8 94 9 05 6 78 5 78 10 54 6 7				
THANAS  Goghata Panduah Khanakul Dhanakhali Arambagh Hanpal	22 34 29 70 12 55 23 89 13 11 15 22				

TOTAL NUMBER OF BIRTH AND THE INFANT MORTALITY REGISTERFD IN THE HOOGHLY DISTRICT, JANUARY 1911

	1911	1911		
Registering Circles	Total num ber of buth registered Infant mor		Percent rge	
Hooghly, Chinsuiah I own Bansbai ia Arambagh Baligarh thana Pilba Hooghly Dhaniakhali Panduah Arambagh Khanakul Goghata	743 134 154 1,539 1,151 589 3 364 2,431 3,810 3,762 2,940	192 42 50 449 357 140 765 666 745 551	25 84 31 34 27 17 29 11 31 (2 23 77 22 74 27 39 19 55 14 65 30 71	
Total	21,007	1 859	23 13	

The probable date of Malarral infection of Arambagh

If the statements of the old inhabitants of the place are to be believed, the Sub-Division was a remarkably healthy place about 50 years ago when fever was almost unknown Some of the old official correspondence I have come across supports the above view In the year 1872, Colonel J F Stoddard, M sc, Offg Engineer, South-Western Circle, was instructed to ascertain and report "on the character of the dramage or causes of the want of dramage of the District of Burdwan in which fever has been so prevalent recently ' Accordingly Colonel Stoddard submitted a report dated the 4th April 1872, which may be found in an official publication The following occurs in Eden Canal papers the course of this report —"I next proceeded to Jahanabad (former name of Arambagh) where I was met by the native Deputy Magistrate on the 18th February Jahanabad is the chief town of the Sub-Division of that I was told by the Deputy Magistrate that the fever made its appearance in the Jahanabad Sub-Division in 1869, etc." Thus it will be seen that the Arambagh epidemic is an off-shoot of the Buidwan epidemic, and

came several years later from Burdwan to Arambagh As I have tried to show in some articles in the Indian Medical Record last year, the study of contemporary Bengalee literature affirms the view that malaria in epidemic for m was unknown in Bengal before the Burdwan epidemic

### Kala-azar Case

Both typical Kala-azar in which there cannot be any mistake about diagnosis and doubtful cases in which diagnosis needs confirmation by microscopical examination have been noticed here by me Taking all of them into consideration, I am inclined to think that Kala-azar here accounts for not more than one per cent. of the number of cases hitherto called malarial I may note here one of my interesting experiences of the Kala-azar cases of this place

There is a big masony double-storied house here, situated not far from the bank of the river but surrounded by drity tanks, vegetation and groves. The house is inhabited by the members of a large joint family possessing numerous children. I found most of the children of the house to be at the time of the examination malaria-infected and possessed enlarged spleens. But in a room at one extremity of the house on the ground floor. I found the cases to be Kala-azar cases and not malarial cases.

There were 4 brothers in that room besides then father and mother The three eldest brothers slept together in the room at one place whilst the father and the mother and the youngest boy slept together in another place These 3 elder brothers who were about 14 years 10 years and 7 years of age were found suffering The eldest brother was taken from Kala-azar to an up-country station where the diagnosis was confirmed by the Civil Surgeon of the place, and ultimately died of cancium onis The next brother was under my observation over one year and I noticed all the typical symptoms of Kala-azar as typical double quotidian type of fever, temperature using without chill, epistaxis, quick pulse, pigmentation round eyes, spells of deposit of subcutaneous fat at times, characteristic enlargement of spleen petechre, in fact all the typical symptoms of the disease The third brother who was aged about 7 years and had marked enlargement of spleen, developed an irregular type of fever which was resistant to quinine and which ultimately yielded to Soamin injection combined with the injections of staphylococcus vaccine

I have also seen several cases of Kala-azar coming from a particular house of a locality. while the neighbouring houses were singularly free from the disease

Facts much as the above have convinced me that an insect which carries the parasite of the disease is very probably not a flying insect such as a mosquito but a creeping insect like a bug

Percentage

72 28

of apleen

### Evammatron of the Mosquitoes

I have been able to notice the following varieties of anopheline mosquitoes here M Rossei, N Fuliginosus, M Listoni and M Nigerrimus The mosquitoes increase markedly after the The mosquitoes which setting in of the rains become prevalent at that time are N Fuliginosus The variety M Listoni is and M Nigerimus The mosquitoes gradually diminish with At the height of the setting in of the winter winter M Rosser appear to be the prevailing variety of mosquito, other varieties of mosquitoes The larvæ of anopheline mosbecome scarce quitoes are very abundant during the rainy season and they become scarce during the winter season and summer season, which are also the healthiest seasons of the place

### Water-supply of the place

The total number of tanks within the Municipality as counted by me was 289 and the dobahs were too numerous to be counted In one ward alone the number was 105 For the watersupply of the place, the Municipality tried to introduce pucca masonry wells to 2-3" in diameter and about 22 feet, but these proved to be a failure But a big pucca masonry well constructed by the Public Works Department supplies the best water available in the town The river Dwarakeswar flows through a part of the Municipality which appears to be somewhat healthier than other parts

### Table for spleen rates for the different uards of the Municipality

From the table given below it will be seen that practically there is very little difference in the malarial infection of the different wards of the Municipality It may be stated, however, in a general way that the wards which were on the river banks were comparatively more healthy than those situated somewhat interior containing numerous tanks and dnty dobahs

	<del></del>			
Serul Number	Name of villages	Total number of male and fe male children	Number having spleen	Percentage of spleen
12345678991011231415516	Nirbhoy pui Suparah Naparah Kay rapara	208 10 79 204 34 121 124 97 142 111 69 85 91 728 514 125	148 77 53 147 24 86 89 70 103 77 50 61 65 72 68 10 90 15 20	71 15 70 00 67 09 72 06 70 59 71 07 71 77 72 16 72 54 69 37 72 46 71 76 71 43 72 22 77 27 71 42 72 00 71 73 76 92
******	-0141	1,721	1,235	71 76

### The spleen rates for the Hrndus and Mahomedans and the different Hindu custes

I give below the table for the spleen rates of the Hindus and Mahomedans as well as of the It will be observed that different Hindu castes there is scarcely any difference between the spleen rates for the Hindus and Mahomedans In the table of the spleen rates for different Hındu castes, no reliable conclusion can be diawn regarding the castes, the number of the total children of which is less than 50 in the table

Total num

ber of male

and female

children

Race

TOTAL

Number

having

spleen

		٦	111,410,1			[		
Hindus Mahomedans			1,338 379	96 27	964 277		72 04 73 08	
	TOTAL		1,717	1,24	i		72 28	
				····		==		
Serial number	Race and Castes		Number of houses	Total number of male and fo male children	Namber having	spiden	Percentage of apleon	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 1 22 23 24 25 6 27 28 29 30	Mahomedan Bagdi Teli Biahmin Ugra Kheti iya Kayastha Fisherman Dule Sai na Banick Hali Kui makai Kumvahai Dome Bai bei Munchi Madan Gandha Banick Kalu Goala Cai pentei Satgope Baistobe Rajput Tamli Washei man Malakai Suri Jugi tantubay Mathoi Acharja		284 192 102 92 668 247 33 28 21 23 24 15 11 12 10 96 84 43 44 12	379 310 148 146 98 762 49 49 48 17 41 38 329 21 18 17 16 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		77448891689327113307262342204186755333	73 08 72 25 70 27 73 97 70 40 65 30 74 65 74 65 75 70 66 74 74 63 75 78 78 79 71 05 78 79 71 42 83 66 66 77 77 71 42 83 66 60 75 00 75 00	

However, the general import of the table is (1) that the prevalence of the malaria in a caste is accordance with the economic conditions of the caste That is to say, a caste having more favourable economic conditions is more favourably situated to resist malarial infection than one which is less favourable in this respect (2) The castes which have to do out-door work are less hable to malarial infection than the castes which by their occupation have to be confined to their houses

1,104

1,717

1,241

Goalas or milk-men show in the table the minimum malarial infection which may be due to their excellent habits of making smokes in their houses to drive out mosquitoes and other insects during the night to save their cows from the trouble of being bitten by them

Malakars who make fancy articles and ornaments for idols and gods, etc. and carpenters suffer not only because of their sedentary occupations, but also because they keep their houses in dirty condition, their dwelling-rooms often being store-rooms for their manufactured articles, the nooks and crevices of which furnish the favourite resting-places for mosquitoes

In conclusion I beg to state that I am greatly indebted to Lieut-Colonel A H Nott, M D, I M S, Civil Surgeon, Howrah, for taking much trouble in revising the paper and giving me necessary suggestions for remodelling the same, which alone have made this paper worthy of publication

### FOUR INDIGENOUS DRUGS \*

BY RAI HARI NATH GHOSH, BAHADUR, Campbell Medical School, Calcutta

MR PRESIDENT AND GENILEMEN,

I REQUEST your permission to place before you some of the results of a trial of the preparations of four indigenous drugs at the Campbell Hospital The drugs and their preparations in question are —

(1) A tracture of Berberrs Lycium or Berberrs

Arıstata (Bengalı name—Daruharıdıa)

Preparation—The diled stem in No 60 powder exhausted by percolation process with 60% alcohol—2 oz of the powdered wood being required to produce a pint of the tincture

(2) A tincture of Melia Azadirachta (Bengali

name—'Nım')

Preparation—Tincture obtained from rasped bank by maceration process with 40% alcohol—2 oz of the bank being required to produce one pint of tincture

(3) A liquid extract of Holarihena Antidysen-

terica (Bengali name—Kurchi)

Preparation -1 in 1 made with 60% alcohol—the stem bank being used for its preparation

(4) A tincture of Ixora Coccinea (Bengali name—Ranganful plant)

Preparation -4 oz of the dried root in No 20

powder to a pint of alcohol 60%

All these were placed with me for trial by the Reporter on Economic Products to the Government of India and Hony Secretary to the Central Indigenous Drugs Committee—Mr David Hooper—since June 1912 in several instalments Some of these are yet under trial and I have

not yet drawn up my final report on them I owe it to his courtesy to comply with my request to place before you some of the illustrative cases which I shall read summarily and point out incidentally how the patients responded to treatment

### TR BERBERIS

It was tried on 8 patients of the following description —

Group I—Four verified malaria cases (perpheral blood showing parasites)—the patients having intermittent fever and the spleen being enluged

Group II—One case of intermittent fever having malaria-like fluctuating temperature (but peripheral blood not showing parasites) Spleen enlarged

Group III—Three cases of very hard spleen (practically appretic or slightly prietic), one of them showing no malarial parasites or L D

bodies in peripheral or splenic blood

No benefit in Group I or Group II patients In fact one case of Group I only got rid of his malaria on being given quinine after a Berberis trial lasting over about 2 months

No benefit in patients of Group III though the spleen became a bit softer in two of them

Opinion—The preparation of the drug is not efficacious for malarial or cachevial cases. But considering the old standing reputation of the drug in chronic fevers I feel inclined to recommend a trial of a richer preparation—a liquid extract

N.B—Detailed report of cases were read out The above is only an abridged summary

### 2 TR MELIA AZADIRACHTA

It was tried on 4 patients

Group I—Three verified cases of malaria (the peripheral blood showing malarial parasites)
Spleen enlarged

Group II—One case of malann-like fever Spleen enlarged but with no double uses of

temperatui e

Of Group I—In one case the result was inconclusive -- the stock of melia having run out early

and he had to be given quinine

Of the other two—in one the benefit was marked—the fever stopping—parasites disappearing from the peripheral blood—and then disappearing behind the costal margin. In the remaining one case the result was also demonstrative of a clear efficacy of the drug

Of Group II—the patient's spleen which was 2½ inches below cost il sich, during the last pyrexial period, got reduced in about a month to just below the ribs—the fever also disappearing

Opinion—The ding, it may be pointed out, possesses decided anti-malarial properties though weaker than quinine. I can recommend using the bark—a very cheap and everywhere available staff—in lieu of cinchona bark in making a decoction which may be exhibited with quinine and

<sup>\*</sup> Paper read at the Asiatic Society's meeting of its Medical Section in March 1913,

thereby curtailing the expenditure of the latter in treating malaria cases The drug did not show any toxic head symptoms like quinine

### 3. Ext Holarrhena Liquid

The drug was tried on 4 patients Group I-Two chronic relapsing cases Group II —Two acute cases—one really a subacute case

Benefit was marked in both groups of patients -all patients got well in less than a weekexcepting the sub-acute case of Group II which took nearly three weeks to get well

Opinion — The liquid extract is a satisfactory remedy in acute, sub-acute and chronic cases

### TR IXORA COCCINEA

The drug was tried on 14 patients It was tiled over fifty cases in the years 1908-1909 with good results (the papers are now in the possession of the Reporter on Economic Products with the Government of India) The present is a new series

Group I—Eight acute cases Six chionic cases including a case of Kala-

Of Group I - Improvement and cure of all the acute cases in about a week-except in one where only an improvement was noticed

In Group II -The Kala-azar dysentery cases did not show any improvement The other cases improved and got well in a week to a fortnight

Opinion -The drug was of decided efficacy in acute and chionic dysentery cases

NB —Detailed report of cases were read out

The above is only an abiidged summary

Now, Gentlemen, after I have finished giving you the results of trial, I would like to invite your attention to the possibilities of our vast Indigenous Materia Medica Among the drugs now dealt with three are already incorporated in the Indian and Colonial addendum to the British Pharmacopæra of 1898 And "the General Council of Medical Education and Registration of the United Kingdom," while it published in the year 1901 the Government of India edition of the same addendum mentioned in its preface-I am quoting the very words-"With regard to the sources, preparations and properties of some of these drugs further investigation especially in the countries in which they are found is much to be desired, and it is hoped that their official recognition will conduce to research of this kind" The addendum is thus to a certain extent provisional, it is supplementary to the British Pharmacopæia 1898—bat it is also to be regarded as preliminary to the next Pharmacopœia—with which its contents, subject to such improvements as increased knowledge and experience may indicate, will probably be incorporated

Here then, Gentlemen, there is a duty on the part of those of us who can afford to help-to help a cause which may have considerable economic advantage in the works of clinical thera-

Luckily I have had opportunity and have gladly accommodated leisure to contribute my humble share of help-how far usefully I do not know But I would be glad to have the opinion of the gentlemen of this learned assembly on the suggestions based on inferences over the cases taken collectively with each of the four preparations of the four drugs Of these Ixora and Holurhena prepulations are yet being tried on—the other two are done and finished But about Ixora and Holaithena I] think I have placed enough demonstrative material for expression of an And we have to determine their place in the treatment of dysentery in future is a ding which was once before-in the year 1908 - tiled by me over 50 cases with good These were subsequently published in the Calcutta Medical Journal And I would beg leave to utilise this opportunity to mention that year before last I tried on my own account two other drugs at the Campbell Hospital in each of which cases I was able to determine new truths

The drugs in question were-

(1) Piciothiza Kutoa-known in Bengali as 'Kataka'-which is a drug belonging to the Indian and Colonial addendum and which is yet being described on in text-books of therapeutics and in the British Pharmaceutical Codes as simply a bitter tonic and antiperiodic I was, however, able to demonstrate by clinical results that Picioiliza was better as purgative than something else A liquid extract of it is a very sure simple purgative—the drug containing, according to authors of Pharmaceutica Indica, a quantity about 9% of cathartic acid (the well-known Anthracene derivative-which occurs as the natural constituent of Senna and other dings)

(2) The next drug in question was Inbulus Terrestries or Chota Gokhura—a plant of known repute as a dimetic-but whose dimetic property was generally believed to be due to a quantity of mucilaginous matter in it however, able to extract about 101% at least 10% of oleo-resmous matter in it-which by itself and in the form of galenical preparations (both alcoholic and aqueous liquid extracts) clinically tested, proved to be good dimetic And by virtue of its abundant presence like many other oleotesins gave Gokhura the amount of qualification as a divietic agent—no doubt The results have been published in the Calcutta Medical Journal and in the "Food and Diugs" and will be published by the Calcutta University too

And without digressing much from my topic I may add that here there is an undoubted claim on behalf of the indigenous materials of medicine being more thoroughly verified in our own way as to their pharmacology and adaptability in clinical their peutics Let me hope this learned assembly will support the idea of special chairs in

the already being schemed tropical school of medicine of in the Medical College whereby not only an economic cause but a great Imperial cause of the General Medical Council will be served—I mean the Council's cherished and expressed hope of making a great Imperial Pharmacopæra I think that India and Indigenous drugs of it can contribute much and most usefully in its structure I may mention that the structure of the Addendum of 1901 was exactly made in this way—I mean by incorporation of new drugs recommended by medical authorities of each of the seventy administrations of His Majesty's dominions and from India very largely That being the case, the claims of indigenous drugs only need a little bit more pushing forward and a more interested and firmer support at our Institutes of Medicine

After the reader had finished Col Rogers enquired whether his dysentery cases were cases of a series or not

To this the reader replied that they were more or less selected patients in so far as patients with a pronounced cachevia taking admission during the period of trial were not tried with this drug but given some other treatment

Di Ghosh's idea about the chair of Indigenous drugs in the Tropical School or in Medical College was supported by Major McCay and Col Deare, both of whom complimented Di Ghosh's labours

## NIGHT-SOIL INCINERATION IN CANTONMENTS

BY P HEHIR, colonfl, ins,

Assistant Director of Medical Services, Burma Division

THE removal and disposal of night-soil are amongst the most important sanitary problems of armies in the tropics, and in our aimy in India, are at present the most serious and difficult questions in the daily routine sanitary work of canton-We must put out of the question the use of water-carriage system of sewage, ejector and propulsion systems, as they are for various reasons non-existent, and septic tanks in association with the pail system may likewise be excluded, for although they have not so far been tried on a sufficiently extensive scale to entitle us to express a definite opinion of their merits and demerits in cantonments, they have hitherto yielded conflicting results, and in no instance have they been an unqualified success have therefore to fall back on either the dry earth system, removal in carts or buckets combined with trenching, or incineration in the The greatest danger neighbourhood of latrines from excreta is the fact that in garrisons of troops some are almost certainly suffering from one or other form of infectious disease in which the

germs are contained in the dejecta, or have recently recovered from or are healthy "carriers' of such disease There is no getting outside the fact that the disposal of night-soil in the tropies in the absence of a water-carriage system is always associated with difficulties, and will present military sanitary officers with perhaps the most serious task included in their duties. Under this circumstance, success can only be obtained by the most uniemitting supervision by medical officers of units and cantonment sanitary authorities generally, senior medical officers of stations, divisional sanitary officers and assistant directorof the medical services, but especially the first named two officers, and I am convinced that nowhere in the Eastern tropics can we at present hope for any immediate relief from this necessary perpetual watchfulness regarding any system of night-soil removal employed with the most perfect supervision and best possible arrangements there will always be an element In the pail system combined with trenching there must be perpetual watchfulness in regard to every detail under responsible persons preferably under part of the regimental sanitary detachment in regimental areas, and a trained sanitary inspector in non-regimental aleas the cantonments of several tropical countries the dry earth system is adopted. Our experience in military life in India leads us to unhesitatingly It was practised condemn this system for troops by us for over half a century, and then abandoned because we ascertained that it led to soil contamination and the breeding of flies, both of which kept up entene fever and bacıllary dysentery, infective diairhoa, and probably other diseases In all latrines for troops, British and Indian, in cantonments, an emulsion of saponified cresol in water has taken the place of dry earth desnable that this emulsion be used in the same way in all latrines in cantonments that are outside regimental areas, and that it be used in the commodes of occupied officers' bungalows One of the general methods of disposal of night-soil now adopted in Indian cantonments is that which is known as the "shallow trench system" The principles comprised in this system are—the conversion of organic into inoiganic matter, and the best means for utilising this change for the The object aimed purpose of practical farming at is the total destruction and nitrification of the sewage in the shortest possible time, so as to enhance soil production of vegetation and enable the soil to be used as a trench again as expedi-In this system the collection tiously as possible of excreta is carried out at the latrines latrines are placed in various parts of the cantonment and consist of either galvanised or corrugated iron, with compartments compartment has a recess in which an iron pan or bucket fits This bucket is emptied morning

and evening, into what we call the "intermediate" receptacle, these are elongated non, cylindrical-shaped utensils having water-tight non covers. A sufficient number of these is attached to each privy to contain the contents of the pails, so that the latimes are always more or less clean. From receptacles the night-soil is in most cases again transferred into non carts at the latrines The night-soil is then conveyed to and deposited in the trenches, or on prepared The pans, receptacles, carts, and latrines are regularly tarred or covered with a layer of ciude petroleum oil The plan above sketched, more or less modified, is that which is adopted m most cantonments in India It is an exceedingly expensive and laborious one

This system, in which the contents of the pans are first emptied into receptacles and these into non carts at the latimes, can, when become an appalling nuisance, a neglected serious source of enteric and para-typhoid fevers, bacillary and amoebic dysentery, infective diarthea, cholera and entozoal infections, it may, in short, under defective management and supervision be one of the most abominable sanitary arrangements in the barracks of the tropics There is always more or less spillage and the cleaning of the pans at the latrines by the sweeper, often done in the most perfunctory way, is frequently associated with a nuisance, flies, and danger to health, and I risk to say that no latime area in which this system is carried on, unless subjected to much greater supervision than we can reasonably expect in the tropics, can be kept absolutely free from nursance or danger from disease These dangers, and those due to the spillage from the carts that occurs en route to the tienching grounds, are fully recognised, but, unfortunately, in many places in the tropics, are considered inevitable a system is deemed unavoidable, the pans used in the closets should be provided with moveable water-tight covers, and carried to the trenches, thus obviating the necessity of using either intermediate receptacles or the non carts which are in reality sewage tanks There are, lastly, all the risks associated with the trenching itself It is impossible to conceive that a system which permits the bacilli of enteric and para-typhoid fevers, dysentery, epidemic diarrhea, and cholera, to linger in the neighbourhood of barracks for from 12 to 24 hours, to be afterwards deposited m trenches where they live in the soil for some time, can ever he free from 11sk to the health of

One has watched this system carried out in its integrity in several large cantonments in which there was no nuisance there being neither offensive smell, flies nor carrion birds (the three indicators of a neglected trenching system), isk to health was reduced to a minimum but

one's general experience of it is that there are many stations in our Indian Empire that cannot be included in this list. One is conscious that the expression of such views will in some quarters be considered heretical, and one knows that many stations derive a certain amount of income by leasing the trenched areas for cultivation My opinion of hand-removal with trenching has been forced upon me as the result of experience, and I submit that we maintain cantonments for our troops, and that in this connection the health of the troops rather than profit, should be the primary consideration the incomes derived from this source are infinitesimal when compared with the entire cost of the upkeep of an Army in India, we know by experience that one of the costliest items in our Army 15 mefficiency due to preventable At trenches badly managed there are swarms of flies and the night-soil carts from such trenches become covered with flies which they carry back to the latimes, the flies thence migrating to the bairacks and kitchens ova of flies deposited in the excreta in latimes are hatched in the trenching grounds infest neglected latrines and are favoured by an unclean, insanitary and badly managed pail system Flies are instrumental in carrying the bacilli of enteric and para-typhoid fevers and bacıllary dysentery to the food Barracks that are infested with flies supplies will sooner or later become focr of infective disease, and probably more than one such disease I might here incidentally remark that the piofessional sweeper should never be allowed to enter barrack rooms or kitchens All the cleaning that is necessary inside barrack looms and cook-houses should be carried out by the troops themselves—this applies to both white and indigenous troops The persons, clothes, and brooms, of most sweepers are sometimes laden with disease geims derived from human excreta. and are very attractive to flies

The dangers of the pail system with trenching are so numerous that during the last six years I have come to the conclusion that incineration of excreta at the latrines forms the one solution of this very difficult problem for armies in the The more one's experience of it has grown, the more forcibly have the advantages of complete incineration in loco been recognised It gets 11d of excreta, with any disease germs they may contain, once for all It is opposed to the old adage,—" the nam to the miver and the sewage to the soil," and it is not sound from an economical point of view, but to a large extent the process certainly eliminates sewage-borne Immediate incineration of excreta in the neighbourhood of latimes if the details of the process are not carefully supervised may to a limited extent be risky to health, but on the

whole this risk is considerably less than in any other system yet devised. Even where the details connected with incineration are properly attended to there may be a certain amount of nuisance from malodorous and unconsumed smoke, but this is not a real danger to health, and must, one regrets to say, be endured for the present. When the system of incineration is perfected and arrangements for the complete combustion of excreta without the production of this objectionable smell have been devised, even this drawback will be removed.

But incineration cannot do away with the necessity for latimes. These must initially be properly constructed, and have an impermeable floor, and be kept in complete repair and properly worked. The earth floor of the 'Delhi Durbar' 1902-03 pattern latime is now not approved of by military sanitarians.

In the incineration method the only danger that can arise is from the excreta from the time it is deposited in the pan until it is brought to the furnace There are two special sanitary requirements needed in latimes—prevention of the multiplication of disease geims in, and the access of flies to, the excreta In India and Burma we have found that an emulsion of saponified cresol (1 to 640) is of sufficient strength to achieve these objects The emulsion acts as a fly repellent thus preventing flies depositing their eggs in the pans Since the introduction of this cresol solution there has been a very remarkable absence of flies in the latrines and kitchens, especially in the barracks of our European troops is now rare to find flies around our barrack latrines in which there has been adequate supervision as to cleanliness and this saponified cresol solution This is what we term the "wet is properly used system" in barracks in India now, because about half to one pint of the saponified cresol solution is put into each pan as soon as it is returned to the compartment of the latrine. The special danger in connection with latrines are the "possible existence of "carriers" of enteric and paratyphoid fevers, dysentery and choleia, and the 11sks that the geims discharged by them get into air, water, or food The two chief ways in which the germs of these diseases can be carried are by the carrier himself and by flies Therefore we must be constantly on the qui vive for such carriers—flies can, or ought to be readily excluded

A large number of Indian cantonments are being provided with night-soil incinerators, into which the excreta are thrown directly. As soon as the pans in the latrine have been used they are at once brought to the incinerator and emptied into it. This does away with both the conservancy non carts and the intermediate receptacles or metal cylinders in which the excreta are collected between the visits of the carts. It also prevent the gathering of flies. In all cases the latrines

of the cantonment are divided up into groups, each group being connected with one incinerator. Where the latrines are remote from one another a small incinerator may be used for each. The fuel employed is stable litter, road sweepings, bazaar dry refuse, leaves of trees, etc.

There are two types of these incinerators, the closed and the open The latter has of late years been losing its former popularity and one personally considers it decidedly inferior to the former The closed incinerator is in use in a large number It is designed to effect the of cantonments complete combustion of all latrine excreta in a closed chamber The body of the incinerator is comprised of bricks set in lime Angle non is used for the bars forming the grating, which are fixed at a height of 12 inches from the floor. there being a clear space between each bar of  $1\frac{1}{4}$  inches The doors of the incinerators and the wind screens are made of sheet non in an angle The door, which fits into an non framework opening in the roof, can be removed as required The furnace is fed from above The draught enters from four openings made below the grating The inside of the furnace is dome-shaped to avoid angles and enhance the draught. The chimney is constructed over the centre of the furnace, the opening for charging them being on the dome just above the beginning of its curve from the lateral walls. There are various modifications of this incinerator, the largest of which can burn the solid ordure and evaporate the urine of 750 men during 12 hours' work cost of election of one of these is roughly about A two-roomed shed is constructed in the vicinity of the incinerator, one room for storing refuse and the other for the scavengers The chief who attend to the incineration advantages claimed for this incinerator are durability and simplicity, economy in construction and subsequent working, independence of meteorological influences, the fire is easily lighted, and the process of feeding and maintaining the furnace in action is very simple

I consider that all the patterns of incinerators now in use in cantonments (there are at least five varieties in the Indian Empire, are still in the experimental stage and that when perfected the ultimate outcome will to a large extent solve the problem of dealing with night-soil in cantonments, and comparatively small communities when health and not profit is aimed at

In the Indian Medical Gazette for June 1911 I described the various types of incinerators in use up to that date. Since then the Amballa B pattern of closed incinerator has been experimented on, and as far as my experience in the Burma Division goes, it is superior in several ways to any other form of incinerator yet used in India.

In concluding the subject of disposal of nightsoil. I have no hesitation in expressing the conviction that incineration of excreta in the immediate vicinity of barrack and cantonment latrines generally would, to a very large extent, solve the entire problem in connection with all classes of "carriers of the colon-enteric dysentery type of bacilli, also, those of cholera vibilos, Amæba histolyticæ, and the ova of entozoal parasites This comprehensive result could only be obtained if the process of incineration were carried out in its integrity and every detail connected with it given the most minute atten-I am not prepared to state that incineration will continue in per petuo as the one remedy for our conservancy difficulties, but it is quite clear to me in the light of our past experience and that of modern epideminology, that a method that will once for all destroy any disease organisms contained in excreta as soon as they are discharged from the body is the soundest that can be adopted—that method is to be found in incineration in the immediate vicinity of latrines

The discharges from all cases of enteric and para-typhoid fevers, bacıllary and dysentery, infective diairhœa, cholera entozoal infestation should be discharged into utensils containing an active disinfectant and then forthwith incinerated or boiled in the hospital compound This gets 11d of the infective agents once for all This is done in connection with the excreta of such cases in our Station Hospitals, each hospital having an incinerator, but it is only carried out in a limited number of our Indian troops' hospitals If the excreta of such cases as we have named have to be carried to trenches we open out innumerable facilities for the disease-agencies to find their way to air, dust, food, and flies, if we destroy these agencies at once we eliminate the possibility of their ınfecting our soldiers' food and drink, these latter being in practically all cases the conveyors of disease germs We have a great deal of evidence to support the view that the bacilli of enteric fever and dysentery are more virulent at the time they are discharged, and that although they may continue to live a saprophytic life, they become less powerful in water and soil as time goes on Direct destruction of all bacterial, protozoal and entoroal forms as they come from infected persons is one of the most comprehensive of all sanitary measures in cantonments If this is not done dissemination of disease is inevitable

Every hospital in cantonments should be provided with some form of incinerator or boiling apparatus which can at least deal with the excreta of all infectious disease cases. Small incinerators, or boiling apparatus can be readily and inexpensively erected in any hospital compound without being a nuisance. Portable metal night-soil destructors for dealing with small quantities up to

50 gallons in the 24 hours are easily obtained For sterilization of excreta by boiling we only require a brick or mud fire-place arranged to receive or suspend a large covered metal cauldron into which the excreta and the utensils containing them are thrown

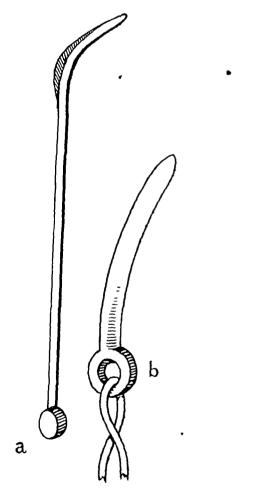
## A Mirror of Hospital Practice.

SOME NEW METHODS OF TREATMENT INTRODUCED BY THE STAFF OF THE GOVERNMENT MATERNITY HOSPITAL, MADRAS

By F C FRASER, CAPTAIN, 1 M S.

Assistant Superintendent, Government Maternity Hospital

LIEUTENANT-COLONEL G G GIFFARD, CSI, has designed some new dilators which have proved to be most useful in the treatment of sterility and dysmenon hea. As the illustration



a Cutting dilator
b Short dilator

shows, in one kind, a cutting edge has been added to the shoulder of the ordinary Mathews Duncan dilators. In very tight stricture of the cervical canal, instead of using an ordinary cutter to facilitate dilatation, these cutting dilators will complete the operation straight off, each cutting sufficiently deep to prepare the way for the next. By means of these instruments dilata-

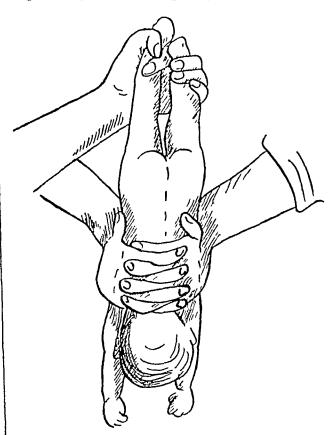
tion can be carried out with the greatest ease, the result being all that could be wished for The other kind are known as 'shorts and are introduced at the end of a dilatation, being left in situ from eight to twelve hours. There is no tendency for them to be expelled from the cervix and a tape is run through the fenestration to facilitate removal. Arnolds of London make these instruments, the use of which has cured many cases of sterility and dysmenorrhom

"Extraction of the head after perforation, with forceps' in preference to the application of a cephalotribe, although not new (Munro-Ken adopts this method in cases of slight contraction of the pelvis, to facilitate delivery where the child is already dead) has been adopted almost entirely by Lt-Col G G Giffaid and his practice has been followed both by Captain Hingston and Forceps are first applied to the head which is subsequently perforated between the Instead of making counter-pressure on the head above, traction is made by the forceps Perforation having been carried out, from below further traction serves to express the brain-matter and the collapsing head usually slips easily The employpast the obstructing promontory ment of only one instrument is an important gain and eaves the woman from much handling There is little or no tendency for the forceps to As a consequence of slip off the perforated head this manœuvre, the cephalotribe is rarely employed in this hospital and so far, not once this year

Captain Hingston has shown that in occipitoposterior cases where one fails to rotate the occiput
with forceps to the front, by the short route,
success is often obtained by trying the longer,
viz, through nearly three-fourths of a circle
The reason of this is evidently due to the
position of the shoulders which are entering in
the wrong diameter. The shoulders cannot easily
be made to accommodate themselves to the head
but vice versâ the head can be rotated to suit the
position of the shoulders and delivery thereafter
be easily effected

During the last few months I have tried a new method of resuscitating babies born in a condi-The accompanying of asphyxia-pallida picture shows how the child is held whilst the As soon as the child is thorax is compressed boin, the funis is clamped with two aftery forceps and divided between It is now held up by its feet and the air passages wiped free from mucus, blood Next it is placed in a hot bath oi liquor-amnii and Sylvester's method of artificial respiration em-This usually results in a ployed for five minutes little an being inspired to the lung. is now held up again by its feet, a nuise undertaking this duty whilst the obstetrician facing the baby clasps his hands round the babies' thoras, the fingers interlocking behind Compression of the child's thorax is then carried out some

half-dozen times at intervals of a few second-Each compression is done rapidly and forcibly Aided by the air which has already entered the lungs and by the force of gravity, any mucus etc



Compressing the thorax with the child inverted

filling the air-passages is forcibly expelled and this is wiped away with a piece of gauze

Something equally, if not more important, occurs at the same time. If the baby's face he watched it will be seen to darken in hue. This is due to the action of gravity carrying the blood to the head.

Now in all cases of asphyxia-pallida the heart is beating so feebly and slowly that even if any blood should be oxygenated in the lungs it stands a very poor chance of reaching the respiratory and cardiac centres in the brain which is what we are aiming at, for it is damage to and starvation of these centres which is killing our little patient. By the method I have explained above the oxygenated blood from the lungs is run down to the brain by the action of gravity and possibly also by the manual compression of the thorax so that for the time being we are independent of the heart's action

The baby is now returned to the bath and more air sucked into the lungs and subsequently again held upside down by its feet and the thorax compressed. This is repeated alternately until the child begins to cry

I have tried this method for the past three months and find that both in theory and practice it works most successfully, in fact since adopting it I have not once failed to resuscitate a child

Two cases lately were born without the slightest trace of pulsation in the funis and in one of them, no feetal heart had been heard by the most careful auscultation sometime before the birth of the child, yet both children were induced to breathe and cry out

An improvement upon simple venesection has been tried by myself in cases of eclampsia recently Venesection is performed in the right aim and coincidently saline is run into a vein of the The blood pressure is determined every five minutes The aim is to bleed the patient a little faster than the saline is infused so as not only to dilute down the toxins in the blood but also to steadily reduce the blood pressure case I tried this new method on had a blood pressure of over 200 mm and had had a series of severe fits in rapid succession At the time of treatment she was in the most profound coma She made a good necovery It must be understood that this is but part of the treatment, the stomach being washed out, saline and aperients administered to help the kidneys and thyroid extract given to aid the fall of the blood pressure Further experience is needed before one can pronounce definitely on the utility of this treatment, but so far the results have been satisfactory

### A CASE OF THORACO ABDOMINAL INJURY WITH PROLAPSE OF THE STOMACH

BY A H PROCTOR, MD, MS,

CAPT, I M S

Civil Surgeon, Serampore

PENETRATING wounds of the chest are not particularly rare in India, but the following case appears of sufficient interest to justify its publication

S K, aged 35, was admitted to hospital at 8-30 PM on the 22nd February 1913 appeared that at 11 AM, re, 9 hours previously, he had been struck on the side of the chest with one of the curved knives used for cutting paddy On admission he had an incised wound 3½ inches long perforating the sixth intercostal space on the left side, and dividing the seventh 11b wound extended downwards and forwards across the space commencing roughly at the posterior avillary line in the sixth space Filling the wound and obstructing any examination of it was a mass of brilliant cherry red colour, and rather larger than an egg, which examination showed to be the fundus of the stomach By pressing down the mass so as to see the upper margin of the wound, a few veins of the omentum could be made No other signs of injury were present

The rigidity of the left rectus was extremely well marked His pulse was 120, but otherwise the patient seemed in good condition, and suffer- ative interference.

ing very little pain of inconvenience It was also noticed that during the time preparations were being made for the operation, the amount of stomach prolapsed had increased

The skin and prolapsed stomach were sterilised with iodine Under chloroform anæsthesia an attempt was made to reduce the stomach, but it was so firmly gripped by the margins of the wound that without using undue force this was found impossible A rectangular incision was made It commenced over the fifth rib in the posterior axillary line, and ian forward to within \frac{1}{2}" of the It then turned downwards crossing the sixth, seventh and eighth ribs near their cartilages and finally ended by turning backwards along the eighth intercostal space, so that a rectangular flap was marked out, having its attachment posteriorly

The sixth, seventh and eighth rib cartilages were divided and in order to free the stomach a further incision was made joining the anterior end of the upper limb to the original wound The whole flap consisting of skin, muscle, ribs and attached pleura, was then forcibly turned In this way a most excellent exposure of the wound in the diaphragm was obtained. It was about 21 long and ran obliquely through the muscular part of the dome of the diaphragm.

After reducing the stomach, the spleen could just be seen at the posterior corner of the wound Two fingers were passed into the abdomen and the spleen and viscera examined for injury, but everything appeared satisfactory, and there was no

evidence of hæmorihage

The wound in the diaphragm was closed with five silk sutures which were passed without any difficulty or interference with respiration noticed that holding the stitch in the diaphragm to steady it for other stitches, seemed to partially inhibit the contractions of that side only pleural cavity was cleared of a little blood it contained and the flap turned back into its place, and stitched with buried silk sutures, and horsehair skin sutures The original wound was similarly closed No dramage was used case made an uninterrupted recovery, all wounds healing by first intention, and the stitches being removed on the seventh day

The case presents several features of interest There was of course no difficulty in diagnosis in this case, but the board like rigidity of the left 1ectus is important In a similar wound of the chest wall, in which there was no visible evidence of injury to viscera or diaphragm, I think rigidity of the rectus would justify the conclusion that there was some injury or prolapse of abdominal viscera, and be a very definite indication for operative interference. The treatment of peneoperative interference trating wounds of the thorax may be divided into the active and passive, and no question is more difficult to decide than the indications for oper-

The passive line of treatment consists of absolute immobilisation of the patient, and dressing the wound without probing or exploring it. Any secondary complications arising, such as hemothorax, etc. are dealt with after they arise. This is Lejars' advice, but he supplements it by a series of indications for immediate operation, and looking up my notes, I find I have operated on three such cases.

His indications are —

External hæmorrhage, ie, from an inter-The indication is as costal or mammary artery a rule obvious, and by a slight enlargement of the wound, the hæmorihage can be got at and dealt There is, however, one place where the operation is a formidable one In stab wounds close to the spine the intercostal lies very deep, and the muscles of the back form a thick, bulky mass, interfering with a good exposure such case in which I interfered I found the intercostal cut 1" from its origin, and to get at it, had to resect a transverse process The patient died some six hours later, and I doubt very much if in a case of this kind so formidable an operation would be of any use, although, on the other hand, a fatal result appears to be inevitable, owing to the proximity of the arterial wound to the aorta

2 Internal hæmonhage Lejais gives as

indications —

(a) When the injury is followed immediately

by the filling of the pleura with blood

In the presence of a rapid and simultaneous aggravation of the general symptoms, and physical signs, i e, the hemothorax enlarging and extending higher, while the dyspnæa becomes great, and the pulse poor These are the only indications for primary operative interference All other conditions, excepting only heinia of the lung, and injuries to the diaphiagm are to be treated by the passive line of treatment The principle of "Look and see," which we apply nowadays, to all penetrating wounds of the abdomen cannot be applied here for several reasons First and foremost of these is that large osteoplastic flaps in a chest free from pleural adhesions may In dogs they invariably do so, and prove fatal Murphy has pointed out that this is due, not to shock, but to the lack of gaseous exchange in the other lung, owing to the vibiation of the mediasti-It is worthy of note that, if such an nal partition accident does occur, artificial respiration is useless, unless the mediastinal septum is fixed, as far as possible, by grasping the root of the collapsed lung

Secondly, wounds of the lung tend to close and heal spontaneously, and the hamorrhage to

cease, without operative interference

Thirdly, the consequences of leaving a penetrating wound of the lung are not so serious as a similar type of wound in the abdominal viscera

Looking at Lejars' indications for operation, we see that interference is seldom indicated. A surgeon seldom sees his case soon enough to decide

that there has been an immediate filling of the pleura with blood. A gradual filling is best treated by the passive line of treatment, and draining by means of a hollow trocar if dyspnæa gets severe

Similarly with his second indication, dyspnoan and a poor pulse are a very fallible guide in these cases, and the only physical sign on which one can rely is the homothorax enlarging and extending in spite of treatment

I have explored one case in which I concluded all these signs were present, only to find when I got into the chest that hamoirhage had ceased, and a 3" wound in the lung practically closed

I stitched the wound but have no doubt the

patient would have recovered in any case

To sum up, therefore, apart from lesions to abdominal viscera, penetrating wounds of the lung are best left alone, treatment being restricted to closing the external wound in the ordinary way. As a primary operation opening the thorax is only to be performed in very exceptional cases. The remaining grounds for operative interference in wounds of the chest are such cases as the case described, where there is ground for believing that the diaphragm has been perforated. Apart from herma of viscera into the wound as in this case, their injury is indicated by "epigastric rigidity, pain and tenderness, progressive abdominal distension and vomiting of blood (Lejars)"

For these the thoracic route appears to be better than the abdominal one, giving much better access

In case of doubt as to the extent of injury, or in order to deal with the injury, to the abdominal viscera, such as the spleen, stomach or liver, I should from my experience in this case, prefer enlarging the wound in the diaphiagm and dealing with the injury through it rather than opening the abdomen. The latter procedure I would reserve as an extreme measure

Another feature of interest in this case is that although the stomach had been exposed to the air and covered with dirty clothing for nine hours, it was reduced into the abdomen after sterilising with iodine, and as far as I could discover there were no signs of peritonitis, except some tenderness in the left hypochondrium

Another point in dealing with these penetrating wounds of the chest wall is that it is useless to attempt to close the wound in the pleura by stitches through that membrane only. In the abdomen it is usual to stitch the peritoneum as a separate layer, indeed, if we do not wish to have a subsequent ventral herma it is absolutely necessary. No such necessity exists in the chest and I have found by experience that it is impossible to suture the pleura alone.

It is extremely friable and bound to the ribs above and below so that stitches invariably tear out. Through and through sutures are most satisfactory to close the wound and then it can be hermetically sealed by very careful skin suturing ;

#### SURGICAL CASES

A CASE OF LEFT BUCCAL CANCER WITH INVOLVEMENT OF SUPERIOR MAXILLAR AND GRANDULAR ENLARGEMENT

EXCISION OF CHEEK AND PARTIAL EX-CISION OF UPPER JAW, SUBSEQUENT REMOVAL OF GLANDS

BY OS HUNTLY BULLOCH, MB, chB,

Neyoor General Hospital, Travancore

G, aged 65, married woman, was admitted to the ward on 17th September 1912. Three years previously she had had her two left upper molars extracted. This was apparently followed by inflammation, excessive granulations, ulceration and eventually by cancer, the size of a jack-nut last year.

The tumour grew in all directions till on admission it occupied the left cheek, had attacked the left angle of the mouth and spread over the left half of hard palate. She had been an inveterate betel chewer combining the pleasure of tobacco leaves with the usual ingredients.

It has been noticed that buccal cancer patients in these parts have more frequently been chewers of tobacco as well as of betel Recently a buccal cancer was removed from a girl of 17 She also plead guilty of chewing betel

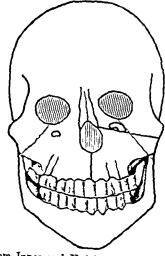
First operation—18th September 1912

External incision—On account of the buccal cancer a horizontal incision something like Velpeau's was indicated. It extended from the angle of the mouth to the masseter

Skin, fascia and parts of masseter were divided and the facial vessels ligatured. The buccal



From Binnie's Surgery



From Innes and Hutchinson's Surgery

growth was entirely cut off from its blood supply and excised. The upper jaw was now freely exposed and found to be involved sufficiently to waitant partial excision. The nasal cartilages were separated from the bones and the superior maxilla divided as shown in the diagram. The rest of the operation was performed in the usual way. The part did not come out very nicely and all doubtful tissue had to be removed piecemeal, leaving as wider a margin as possible. The cavity was touched with solution of zinc chloride 40 gis to an oz and packed with iodoform gauze.

At subsequent operations the enlarged lymphatic glands on the left side of the neck were removed, the left angle of the lips retrimmed of



doubtful recurrent growth, and Stenson's duct released from its cicatricial bed and permitted to discharge its contents again into the mouth

The patient left hospital on 12th November 1912, with a clean mouth and no signs of recurrence, and with strict injunctions to present herself at intervals for inspection. She returned recently in February 1913, and on examination showed no signs of recurrence, and seemed much improved in liealth.

The photo shows the line of incision and the appearance of the woman Disfigurement in this country at present does not count for so much as freedom from pain

Though the growth may recur in the course of time, the operation is justifiable if it release even

for a few months, anyone of a foul growth in the mouth with increasing toxemia and misery

NOTES ON A CASE OF MULTIPLE AND EXTENSIVE INJURIES OF THE FACE AND HEAD COMPLICATED BY SEPTICÆMIA

#### BY A D HARVEY,

Assistant to S M O, Port Blan

The patient concerned, a man, was murderously assaulted while asleep. When I saw him shortly after, he seemed beyond all hope of recovery. The right side of his face and head appeared to be bashed in, and his pulse was just perceptible at the wrist. However, there was no time to be lost, and the first thing to be done was to ascertain the nature and extent of the injuries sustained which were as follows—

- 1 A vertical incised wound about  $1\frac{1}{2}''$  in length through the middle of the right supra orbital arch, dividing skin, muscles, and the outer plate of the frontal bone
- 2 A V-shaped superficial incised wound over the bridge of the nose
- 3 A very deep incised wound about 4" in length over the right temporal bone, and in an oblique direction, cutting through skin, muscles, blood vessels, and both plates of the skull at that part, and exposing the brain beneath
- 4 Two deep incised wounds parallel to each other and about  $4\frac{1}{2}''$  in length each from the middle of the right cheek to the angle of the mouth, dividing skin, muscles and the greater portion of the lower border of the right maxillary bone, and exposing the maxillary sinus
- 5 A deep incised vertical wound by the side of the right ear and about 3" in length, dividing skin and muscles, fracturing the condyle of the lower jaw and severing the temporal artery

The implement used in inflicting the wounds was a large and heavy dao with a concave edge very dirty and rusty The condition of the dao suggested that the wounds would—if the man lived—become septic So that in order to prevent this, as far as possible, the wounds were thoroughly irrigated with strong carbolic lotion, with the exception of the one communicating with the brain, which was washed out with saline solution, and stitched after suitable drainage tubes had been inserted At the end of the operation the patient was given a hypodermic injection of strychnine, and also nutrient enemata and stimulants throughout the night

Next morning the patient's temperature was 101°F, and his condition appeared slightly better. If the wounds were already infected, it would not be easy to get rid of all the organisms, so with a view to the local ariest of the mischief, and in order to destroy or inhabit the

growth of the infecting organisms, the wounds were migated twice a day with a strong rodine solution, and gauze soaked in the same lotion was placed immediately over the wounds the third day the temperature in the morning was 102°F, and the patient had a distinct rigor in the evening, followed by a temperature of 104°  ${
m F}$ The wounds which up to now looked clean and healthy were distinctly septic There was, therefore, no alternative but to remove the stitches, and with the exception of a few to prevent the wounds gaping, they were all removed During the next few days the patient's condition was serious The maintained high temperature, rigors, and the rapidity of the pulse suggested that the attempt to anest the local mischief had failed, and that the infecting organisms had passed into the blood patient was given intravenous as well as subcutaneous injections of large quantities of normal saline solution, and also calomel, salines, etc., frequently to produce diversis and diarrhea with the hope of washing out the cocci and then products In order also to enable the patient's general resistance to o'come the systemic infection he was supported by the administration frequently of fluid nourishment and stimulants

On the 9th day to make matters worse, patient developed pneumonia, probably from oral sepsis The temperature shot up to 106°F, and the patient was quite delirious. He was placed on the usual remedies recommended for pneumonia in addition to the treatment mentioned abovethat is, ammonium carbonate to act as a direct expectorant, but also to stimulate the contractions of the left ventucle, and thus facilitate the circulation of blood through the lung, and large doses of pot citias frequently to render the blood more On the 9th, 10th and the 11th day he was given injections of anti-streptococcus serum (polyvalent) 10 CC each time daily patient's condition during this time was grave, and I gave up all hope of pulling him through

However, on the 17th day, there appeared to be a change for the better, and the patient began to take a little interest in his surroundings. From now until the 23rd day of disease the temperature was not very high, and was intermittent in character, and the wounds were healing by The opening into the maxillary granulation The temperature from sinus had nearly closed the 24th to the 32nd day of disease was quite On the 33rd day he suddenly had a rigoi followed by a temperature of 104°F high temperature was maintained for the next three days, and then dropped to normal and has Patient has now quite been normal ever since recovered, and is now doing his usual work right side of his face, as was to be expected, is badly disfigured, and slightly paralysed however, quite happy, as he has every reason to be.

# VIRO



Before taking Virol Weight 10 lbs



After taking Virol Weight 30 lbs

#### DOCTOR'S REPORT.

II J a boy of 12 months, was brought to me, he was much wasted. The usual remedies were tried without avail. He only weighed 10 lbs. He was put on Virol with immediate and gratifying success. His weight uniformly increased at the rate of 6 ounces per week. He is now a fine, healthy child in the pink of condition and weighs 30 lbs.

A Wonderful Restorer in Wasting Conditions.

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#### NOW AVAILABLE.

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# TREATMENT OUTFITS IMPROVED.

Built According to the Requirements of Lt.-Col. LEONARD ROGERS, I.M.S.

Send for Specification.

PARKE, DAVIS & CO., BOMBAY.

#### SANATOGEN IN SURGERY.

#### Feeding before and after Operation

The success of operations depends, among other conditions, on the mental and physical fitness of the patient for the ordeal which he must undergo. A debilitated patient is "fed up' preparatory to operation, an endeavour is made to raise the nutrition of his tissues to

a high level, to bring up his nervous energy to the point of maximum power, to ensure that his metabolism is equal to the strain of repair involved in convalescence after operation

#### Metabolism Maintained.

Clinical experience proclaims the unique success of Sanatogen in achieving these results Sanatogen is a protein susceptible of ersy assimilation, and it contains within itself the nerve food-Phosphorusin a form which the nerve structures can utilize Sanatogen is, therefore, cminently adapted as a constituent of the diet during the period when patients are prepared for operation

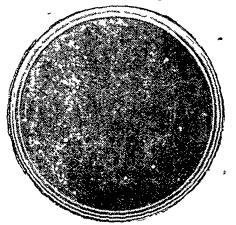
In operations on the Tongue, Jansand Stonach, the dietetic preparations

ne of exceptional importance, because it is essential that the ARLA OF OPLRATION SHOULD BE ASEPTIC. Only sterrlized food can be permitted for some days before operation. In this regard also, the claims of Sanatogen are extremely great, because

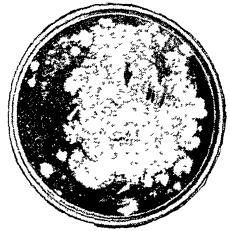
IT IS ABSOLUTELY FRLE FROM PATHOGENIC BACTERIA

Attempts have been made to cultivate organisms from Sanatogen on various nutrient media, under various conditions Di Klopstock (Zeitschrift für diatetische und

physikalische Therapie, B2 5 1904-1905) records 150 investigations made with 23 different packets of Sanatogen. It was found that after 5 days cultivation 10 samples were absolutely sterill, the others showed a few colonies, some as low as 3, but 12 was the maximum, and these were of a perfectly harmless character.



The very slight growth of pactern ob tained from a bouillon culture of S matogen transferred to an agai plate, proving the preparation to be practically sterile



The abundant growth of bacteria obtained from ordinary casein treated in the same manner

Experiments carried out by Professor Di Schuetze, of the Bacteriological Chemical Laboratory of Moabit Hospital, Berlin

#### A Sterile Food.

This substantiates the claim for Sanatogen as a sterile food, when required before operation

Its sterility is again an especial recommendation after operations of the mouth or stomach. The bacteriological comparison of Sanatogen with Casein, the basis of all similar preparations, demonstrates the overwhelming superiority of Sanatogen in the

matter of practical sterility

The sterility of Sanatogen has been the subject of bacteriological test in all the stages of its manufacture, and the most searching experiments have shown that bacterial contamination is scrupulously eliminated throughout

## Albulactin



"Albulactin has been used extensively at one of the large children's hospitals in London, and an English physici in of high repute speaks very definitely of the value of Albulactin as the result of practical tests "

### The Vital Protein of Human Milk.

A physician writes in "The Lancet."

"As we have already pointed out in our analytical columns, Albulactin represents the protein which predominates in human milk Its addition to diluted and sweetened cow's milk is as practice has shown, of great idvantage in infant feeding
"The most striking re-

sults are those in which diluted cow's milk failed by itself, but succeeded when a proportion of Albulactin was added to it "

"Milk modification by means of Albulactin is preferable to and more reliable than all other plans It gives a sense of security which is otherwise only felt when breast-feeding is employed."

The Medical Supcimtendent of a London Infirmary writes "I have used Albulactin in more than fifty cases it was remarkable to note how rapidly, after Albulactin was administered, the voniting and diarrhea stopped, and how the children's appearance altered for the better In every case the preparation was well borne "

#### Samples and Literature

sent free to Medical Men on application to Messrs A Wulfing & Co, 12, Chemes Street, London, WC, manusacturers of Sanatogen, Formamint and Albulactin

#### Medical Thagazine

writes "Cow's milk pro perly diluted contains less than I per cent of milkalbumin It is most essential to supply this deficit, because Nature dictates that the infant must receive a large proportion of milkalbumin Albulactin will adequately secure this

"I have been extremely results attained with Albu-lactin " satisfied with the beneficial

#### Indian Medical Gazette.

SEPTEMBER

#### EUROPEAN DOCTORS IN THE MOFUSSIL

THE following letter from the European Defence Association to the Secretary to the Government of India is a very important document and one which deals plainly with a very important question It is recognised by all that the question of European medical attendance for the families of European officials and non-officials is one which will affect the various services in many ways, and it cannot be denied that if European medical attendance is not conveniently provided this fact must naturally and necessarily affect the recruiting of Europeans in all the branches of the Civil Services The services recognise this fact, and it is hoped that this point of view will be laid before the Public Services Commission when it reassembles in India in next cold weather

Medical men will not settle down in places where a livelihood is not to be obtained, hence as pointed out by Flexnei (in his report on Medical Education, etc.), it becomes the duty of Government to subsidise medical men in the interest of the Government servants, a man so subsidised becomes practically a Government servant, therefore, we say, let the Government of India continue to use the Civil side of the I M S That service has never failed for this work Government in the past Our special number last June showed what it had done for India in the past and what it was still doing. specially appointed medical men of equal standing be easily obtained for the Mofussil Civil Suigeoncies? We doubt it I M S men are obtainable, and if the Government of India goes further it will only fare worse

We print in full the letter of the European Defence Association —

"Sir,—I am directed to address you on a question gravely affecting, Europeans in the mofussil of country districts of India

Hitherto Europeans, both official and non official, in these districts have usually been able to obtain skilled European medical aid

The advice and assistance of European medical officers has been made available by posting officers of the Indian Medical Service to the different stations and districts who, besides being in charge of the hospitals, attend

European officials and their families and are permitted to take private practice and attend non-officials

It has been brought to the notice of my Council that for some time past there has been a tendency to remove the European Civil Surgeons from various districts. This tendency, which appears to be not fortuitous but the result of a systematic policy, has caused alarm and dissatisfaction among Europeans residing in the country districts in India and among their relatives, friends, and employers in the larger towns

My Council have made enquiries as to the reasons for these changes and have ascertained that they are the result of a policy which is the outcome of a despatch No 225, Military, from His Majesty's Secretary of State for India, dated December 11th, 1908, in which the following passages occur expressing the final orders of the then Secretary of State, Lord Morley of Blackburn

Paragraph 3 'I have consequently decided that the time has now arrived when no further increase of the civil side of the service can be allowed, and when a strong effort should be made to reduce it by gradually extending the employment of civil medical practitioners recruited in India'

Paragraph 5 'When it is found impossible to obtain a man from outside the Indian Medical Service to fill a particular new civil appointment, or one which has not previously been so filled, I will not object for the present to that service being drawn upon, but the vacancy so caused must be filled from outside it, ie, no appointment must be made in succession which would involve an addition to the cadre of the Indian Medicaal Service"

My Council desire to point out that the effect of the policy indicated in this order has already been a gradual but appreciable withdrawal of European Civil Surgeons from mofussil districts

It is clear that, as the demand for medical practitioners of high professional qualifications increases, as it continually is increasing and must increase, in the big cities, for the purposes of such great and developing institutions as the Hospitals and Medical Colleges to say nothing of the posts which are constantly being created for bacteriological and scientific research and for sanitary purposes calling for men of the highest scientific attainments, such appointments can only be filled at the expense of the Civil Surgeoncies unless properly qualified independent practitioners can be found willing to accept them

Unfortunately it is very evident that India does not attract a supply of independent European practitioners of high qualifications, and the few such independent men who do seek to establish themselves professionally in India have no need to look beyond the private practice obtainable in the big cities and are not attracted by the civil posts created by Government

The result, therefore, of the orders of the Right Hon Viscount Morley is that, in order to fill the posts above referred to, Civil Surgeoncies in the Mofussil are being surrendered to Civil and Military Assistant Surgeons of to independent practitioners of secondary attainments and that the highly qualified European members of the ludian Medical Service are being drawn more and more into the Towns for the purpose of their occupying the high civil positions and specialist appointments

which they alone are qualified to fill There is nothing to prevent this process continuing under the existing state of affairs until such time as the Civil Surgeoncies in the mofussil areas are entirely in the hands of those who, it is submitted, are either professionally or racially unfitted to hold them

A study of the various Provincial Civil Lists gives the following results. Out of a total of 246 Civil Surgeoncies, 138 are at present held by European Officers of the Indian Medical Service, 17 by Indian Officers of the Indian Medical Service, 53 by European and Anglo-Indian Military Assistant Surgeons, 8 by European and Anglo-Indian independent practitioners, 29 by Indian Civil Assistant Surgeons and 1 by an independent Indian practitioner

It is understood that the Military Assistant Surgeons form a reserve in case of war, but the fact remains, and prominent attention is drawn thereto, that as a body they possess no registrable qualifications. The distribution of these appointments is as follows. Punjab 7, United Provinces 11, Central Provinces 6, Bihar and Orissa 3, Bengal 3, Assam 3, Madias 2, Burma 15, Bombay 3, while of the European and Anglo Indian independent practitioners holding Civil Surgeoncies there are 3 in Bengal, 2 in Madias and 3 in Burma

The Indian Civil Assistant Surgeons are, it is believed, qualified in the technical sense, but their employment in Civil Surgeoneres opens up another aspect of the case which I am instructed to bring specially to notice. These appointments are distributed as follows—Punjab 6, United Provinces 5, Central Provinces 2, Bihar and Orissa 2, Bengal 5, Madras 3 (including the one independent practitioner), Burma 4, and Bombay 3.

My Council wish to make it perfectly clear that they do not approach this question from a racial standpoint in the sense of any point of antagonism between the European and Indian races, but from the universal racial standpoint as touching the most intimate and delicate side of private life. From this standpoint it is no question as between European and Indian any more than between one European race and another. It is a question of the intimate relations which must of necessity exist between a doctor and a patient and of the sacred right and privilege which every man and more especially every woman seeks to exercise of being professionally attended by a qualified practitioner of his or her own race, custom and ideas in life

To force upon European ladies, more especially in maternity cases, practitioners of secondary qualifications, or, as the case may be, practitioners of alien race and customs, is to create a position which no British Government should tolerate for one moment, and yet this is the situation which arises to day, and which is being steadily extended, as the result of the operation of the orders passed by the Right Hon Viscount Morley No Government would dream of attempting to force European male doctors on Indian ladies but, nevertheless, it has not been considered improper to adopt the reverse attitude and to issue orders which have the effect of forcing Indian doctors on European ladies

It is not considered necessary to enlarge further on the subject. My Council trust that the Government of India will view the matter in the light in which it has been put forward, and that steps will be taken to remedy the evil complained of and to so alter the existing system that gradually the Civil Surgeoneies throughout India may be placed in the hands of fully qualified European officers of the Indian Medical Service in the event of equally qualified independent European practitioners not being available for the posts

I am directed to request that the Government of India will forward a copy of this letter to His Majesty's Secretary of State for India"

#### THE MODERN HOSPITAL \*

This huge volume of 644 large pages fills a known want, and the author, Dr J A Hornsby, assisted by an architect, Mr R E Schmidt, need not apologise for offering such a book to the medical public. There is no modern book on hospital equipment and structure

In India where Administrative Medical Officers and Civil Surgeons are often engaged in making plans for hospitals or parts of hospitals we think this book will prove invaluable. In order to give our readers some idea of the vast amount of information in this book we must briefly indicate some of the contents.

Beginning with hospital architecture, we have a good account given as to site, plans, area per patient, arrangement of the administrative units, detail of structure as foundations, walls, floors, 100fing, stairs, partitions, windows, woodwork, painting, water supplies, heating, lighting, signalling, plumbing and sewerage, ventilation, refir-Then follows a chapter on geration, elevators the divisions of a general hospital, administrative departments, kitchens, dining 100ms, service 100m, bakery, private wards, public wards, etc The chapters on equipment will be read with much interest, they deal with fixed furniture, sterilisers, beds, mattresses, bedrests, side tables, chairs, rugs, screens, baths, pictures, books, receptacles Then comes an account of the for clothes equipment of the operation rooms, tables, shelves, trays, sinks, instrument cabinets, then the kitchen comes in for discussion, ranges, dish warmers, coffee and tea uins, cooking utensils, etc, etc Under the heading "Operation of the Hospital," what we would rather call "administration," we read about boards of directors, authority, committees, duties and relation of the superintendent, of the medical staff, the house medical staff,

<sup>\*</sup> The Modern Hospital, its inspiration, its architecture, its equipment, its operation, by Dr J A Hornsby and R E Schmidt, architect London, 1913 W B Saunder & Co

visiting physicians, modern trained nurses, and then teaching and then duties

A big practical section is devoted to the surgical operating 100m, instituments, material, sterilization, diessings, jubber gloves, anæsthetics, spinal puncture, etc In the chapter on the department of Pathology we learn all about the equipment of the laboratory, then come sections on hydropathy, and the hospital pharmacy Then useful and practical chapters on diets, milk, on infection and disinfection, the X-Rays department, record keeping, buisness management, visitors, hospital accounts, purchase of supplies, medical, surgical The house-keepers department is not The book has neglected, not is the laundry It is handsomely also a needed and useful index illustrated

We can strongly recommend this large volume to all of our renders, who are contemplating building, furnishing, equipping or managing a large hospital

#### Current Copies

#### CIVIL SURGEONS IN THE BENGAL

WE direct special attention to the able letter by Capt Proctor, IMS, in our correspondence

columns (p. 370, infra)

The case is a special one and entirely caused by the recent territorial changes in Bengal on 1st April 1912 The men who accepted service in Eastern Bengal and rapidly got "permanent" appointments must continue to hold them and be senior on the list to all "temporary" officers, but we are strongly of opinion that when the "temporary' men in the course of time become "pucer" the order on the list should be altered and all the "permanent" officers entered in the order in which they were gazetted originally to civil employ in either Piovince This would remove what is felt as an undoubted grievance and the men who went early to E B & A would have been rewarded by a long spell of seniority and full pay, while the others would resume then place in the Civil List which their earlier entry into Civil employ appears to entitle them

#### RANGOON MEDICAL SCHOOL

Tur following extracts from the report of Major P Dee, INS, the Superintendent of the young Medical School at Rangoon, will show that it is successfully struggling through the expected infant ailments

"The annual examinations for 1912 13 were held at the end of March 1913 Out of 12 students, who were sent up for the final professional Board Examination, 10 were declared to have passed Out of 14 students

who appeared for the Junioi Board Examination, 10 passed (ie, obtained 50 per cent of the marks allotted), one recommended to be re examined and three failed ene recommended to be it examined and three failed. Eleven third year students sat for the promotion examination, of whom three failed, one to be it examined and 7 promoted to the fourth year class. Twenty appeared from the first year class, of whom nine failed to secure 50 per cent of the marks given and were recommended for removal in accordance with the rules of the school, 11 were promoted to the second year

I consider that the work done by all the students, except those of the first year, was very creditable large percentage of failures in the first year was disappointing. Only four students of this year had the necessary English qualifications. One student had only passed the VI Standard and failed hopelessly in his examination, which is not surprising. Three had only passed the VII Standard and six each the VIII and IX Standards respectively. The subjects of the first year are very dry and difficult ones, which it is almost impossible to make really interesting to students, and I myself think the first year at medicine is the most difficult one of all. On the other hand, it is better for the school and the students themselves that the failures should be weeded out early, instead of later in their third or fourth year, when removal from the school would be a severe hardship and the work of three years absolutely wasted I went through all the papers of the first year personally with the object of finding out if the questions set for examination were fair ones, and also to find out if the marking was on too severe a scale found that the questions were all absolutely fair and that every chance was given to the examinees Those who failed quite deserved to do so, and I saw no necessity to interfere with the results given me by the examiners

Finance -The hostel, as it stands at present, is purely a self-supporting institution, and receives no pecuniary help from outside The total receipts from the boarders during the year were Rs 5,347 9 7, and the total expenditure was Rs 5,140-2-6, leaving a balance of Rs 207-7-1

General Remarks - Major Rost, IMS, acted as Super-intendent of the School up to the date he went on leave, viz, the 11th November 1912, and from that date on-wards, the writer of this report took his place and held it up to the end of the session Assistant Surgeon Y Subrahmanyam took up the duties of an Assistant Lecturer on the 25th October 1912 in place of Assistant Surgeon P R Menon, transferred, the latter held the appointment very ably since the establishment of the school up to the date of his departure from the school The lecturers and the assistant lecturers of the school worked very enthusiastically

Ten final year students, who have passed the final Board Examination, have been sent to Madras to undergo a course of practical training in midwifery in the Madras Maternity Hospital The want of a Maternity Hospital attached, if possible, to the Medical School, mainly for the benefit of the students, is a factor that cannot be ignored, and the establishment of such an institution seems to me a most pressing need The unnecessary extra expenditure incurred on account of passage of students, and the inconvenience caused to them in a foreign land can only then be avoided One of the chief objections to the Madias arrangement is that the students are first taught theoretically in a practical subject and their actual practical work, instead of being taken pair passu with the mere book work, is deferred until the course of lectures is finished Major Barry (one of the examiners) asked a student what he would do for a certain form of dangerous hemorrhage. The reply ac cording to the books was perfectly correct, but when told that it was a question of minutes, within which the hemorrhage should be stopped if life was to be saved, he (the examinee) was absolutely non-plussed, and could give no idea of what immediate treatment he would adopt He knew theoretically all the things that might

be done, but the absence of practical knowledge rendered such theoretical knowledge useless

Going to Madras is also a strain on the students, as it adds another three months to their course of lectures

#### THE PREVENTION OF RABIES

THE 12th annual report of the Pasteur Institute of India for 1912 recently published shows the amount of good work done by this Institution and is a record of good work, but after all prevention is better than cure. We quote, therefore, the following apposite remarks on the prevention of rabies in dogs, which are well worth the attention of our readers—

"Year by year there has been a gradual increase in the number of patients treated at this Institute Beginning with a modest 321 treated in 1900 of up to the enormous total of 3,548 treated in 1912, this number now makes us the largest Institute in the world as regards anticable treatment

The remarkable increase—3,548 persons treated in 1912 compared with the 2,268 treated in 1911—has not been due to an epidemic of rabies in Northern India, but to the fact that every individual on his arrival at this Institute is closely questioned about the number of persons bitten at the same time as himself Aleport is then sent to the despatching officer enquiring for particulars as to the number of wounds, etc, inflicted on those who have not come for treatment. In many instances this officer is able to persuade others who have been bitten to proceed at once to the Institute Before the collection of statistics for untreated persons was instituted only those who were severely bitten and sought medical aid, or those who came under the direct notice of despatching officers, were sent for treatment No further enquiry was made regarding the number of other persons bitten at the same time, and thus a large number remained ignorant of the existence of these Institutes and did not come for treatment

In 1907, the Coonoor Institute was founded, and many predicted that the establishment of an Institute in Southern India would materially affect the numbers of patients treated here, but this has not been the case, and we may safely predict that the opening of the proposed Institutes in Rangoon and Shillong will not materially affect our numbers. We now treat yearly only 90 persons from Burma and about 500 from Bengal and Assam. The only result we can foresee is that these Institutes will have to treat a large number of patients from their own Provinces, who now refuse to come to Kasauli owing to the journey. India will have in a few years' time four or five Institutes, capable of treating 8,000 to 10,000 persons and costing a considerable sum of money in upkeep and personnel, without affecting by one rota the source of the disease, eq. the prevalence of canine rabies. The anti-rabic treatment should be regarded as a purely palliative measure, whilst it is to legislation that we must look for eradicating the disease in the canine race.

#### PREVENTION OF RABIES

The Rabies Older of 1897 introduced by Mr Walter Long freed England from rabies in a very short time, but some have objected to this as evidence, because quarantine measures could easily be carried out in the British Isles, and owing to insular position, importation of the disease could be prevented. The case of Germany, however, overrules this objection, as here a land frontier has to be dealt with, and, under circumstances it is not easy to prevent fresh introductions. In Germany, however, owing to the institution of rigorous sanitary measures, rabies has become a rare disease. In all European countries, legislation has been proved to be the only effectual method of stamping out rabies, and the

rigor with which legislative measures are enforced determines the success obtained

The question of tables in India is an important one from an economic point of view, as can easily be seen from the following facts—

This year 1912, some 5,000 persons have been treated at Kasauli and Coonoor, this has involved Government in a considerable expense, not only in maintaining the Institutes but also in meeting the cost of the concessions granted to at least three quarters of the patients. This does not take into account loss of time and the expenses incurred by the Europeans and better class Indianaly et in spite of these Institutes the toll of human lives from hydrophobia must still be a large one. The loss of live stock in this country cannot even be approximately estimated, but a rough idea can be formed from the data given by continental writers. Monsieur V Babes states that in the villages rabid dogs cause great losses, thus, in Roumania, the number of oxen and goats becoming rabid after being bitten by dogs is several times greater than that of human beings. According to the statistics of MacClure, collected for the State of Ohio from the years 1880 to 1893, more than a million sheep were destroyed by errant dogs, of these 300,000 were gravely bitten by rabid dogs, the loss estimated was more than two million dollars.

In India a popular belief is prevalent that the jackal is the animal which is responsible for the propagation and transmission of the disease to dogs. To show how erroneous this belief is we may quote the statistics of this Institute. The dog is the animal chiefly responsible for the spread of rabies. From the years 1902 to 1912, over seventeen thousand persons were treated at Kasauli, and the animals responsible for biting them were as follows.—

Dog		14,730
Jackals		2,491
Holses		140
Cats		78
Wolves, foxes, etc	•	71
Cattle		16
Infection with human saliva		79

These figures show that, whatever legislative measures are enforced to control rabies, these must be directed against the dog, which is the animal responsible for over 80 per cent of the damage. The jackal, we believe, is not responsible for the spread of the disease amongst dogs, but is secondarily infected by them

#### THE COST OF PANAMA SANITATION

In the Transactions (Vol. VI, No 6, May 1913), of the Society of Tropical Medicine and Hygiene, Di David Thomson gives a very interesting account of the great triumph of "despotic hygiene" accomplished in the Panama Canal Zone. As this has become the subject of many communications in the lay and medical press we need not here repeat the well-known facts but only refer to certain questions as to cost as to which there have been misconceptions.

We need hardly follow Dr Thomson in the more or less academic discussion of the value of a human life. The Americans are a practical people and they recognised that sanitation "pays"

The work began in June 1904

The diastic measures of sanitation enforced in the two towns of Colon and Panama cost £455,000 or say 68,25,000 rupees, part of this is being returned by the inhabitants in water rates and takes, but there must still be expenditure in upkeep. The average population is about 50,000 and

Gorgas admits a cost on sanitation of £73,000 per annum for the past 10 years, i.e., say 11 lakhs per annum It is 'colossal' splendid, but we venture to think that any town or community in India could show equally good results if sanitarians were put in control and if they were provided with this enormous sum annually for every 50,000 inhabitants

#### THE CULTIVATION OF MALARIAL PARASITES

This question continues to receive attention, and we quote the following conclusions from a paper by Dr J G Thomson, of the Liverpool School, which is published in the Transactions of the Society of Tropical Medicine and Hygiene (May 1913) -

"I Plasmodium falciparum and plasmodium inar, are capable of being cultivated up to the stage of spoulation for at least one generation, and we have obtained evidence that plasmodium falciparum may develop for several generations (at least three) in the original culture tube, without transplanting to a new medium

In some cultures the growth was rapid, in others much slower, this is explained by different factors —
(a) The age of the parasite when introduced into the culture tubes (b) The temperature of the incubator (c) The amount of glucose used (d) The influence of previous administration of quinne to the patient

With respect to (d), we have noted that on several occasions sporulation in the case of malignant tertian fever was not completed when the patient had been treated with quinne, the maximum number of spores in cultivations prepared from these being about ten In several cases the parasites refused to develop, and we attributed this to the fact that quinine had been administered before the blood was drawn for culti-

3 The cultures of benign tertian differed from those of malignant tertian in that there was no tendency to clumping of parasites in the former, either before or

during sporulation

4 This difference appears to us to explain in a satis factory manner why only joung forms of malignant tertian are found in the peripheral blood, as the clumping tendency of the larger forms causes them to be arrested in the finer capillaries of the internal organs. It also explains the tendency to pernicious symptoms, such as coma, in malignant tertian malaria. All stages of the benign tertian parasites are found in the peri pheral blood, and there are seldom permicious symptoms because there is no tendency to clumping

The malignant tertian parasite (P fulciparum) is

cipable of producing, in maximum segmentation, 32 spores On the other hand, benign tertian (P vivar) produces, as a rule, during maximum segmentation, 16 spores, sometimes more may be produced, but the

The pigment of P falciparum collect into a definite, circular, and very compact mass early in the growth of the pirasite On the other hand, during the growth of Pinai, the pigment remains scattered in definite granules throughout the body of the parisite, till just before segmentation, when it collects into a loose mass of granules in the centre of the fu'l grown

## ANNALES D'HYGIENE ET DE MEDECINE COLOMALES

Tur first quater's number for 1913 of this well-known medical publication is largely devoted to thecess of the liver M Gaide writes of the l

diagnosis between hydatid cysts and abscess of M Lecomte has a useful article on some cases of costal carries following on liver abscess M. Edonard Sambuc has an admirably complete monograph article on abscess of the liver in Tonkin which is well worthy of perusal by medical men in India We note that M Sambuc says this affection is rare among the inhabitant of Tonkin, out of 108 cases treated only 8 were natives of Tonkin (les Annamites) The disease is chiefly met with among the soldiers from He asks what is the cause of the rarity of the disease among the natives, he attributes it to two order of facts (1) dysentery, all other things being equal 15 less common among the indigenous peoples, (2) and their diet is less haimful (nocive) to the liver

M Sambuc has no doubt about the dysenteric ougin of liver abscess, personally he has found dysentery in 64 per cent of cases, others say 77 per cent, but these figures are probably below (he says) the reality, as the dysentery is often slight or unrecognised and only mild lesions of dysentery are not infrequently found post-mortem in liver abscess cases. He also points out the "iectal dysentery' (la rectite dysenterique) is very rare in Tonkin and the lesions are usually found

He also thinks enoneous the popular idea which connects liver suppuration with the wellknown chronic diaithea of Tonkin notes that the liver abscess symptoms may precede the dysentery symptoms, and he quotes "Rogers de Calcutta" to show that mild cases of dysentery may leave no macroscopic traces in the bowel

As regards olcoholism he cannot help believing that this poison has its bad effect, mainly by diminishing the resistance of the organism, and two orders of negative facts support this view, the lailty of abscess in natives, and the extreme rarity of liver abscess in European women He also refers to abuse of opium as a possible cause, and no doubt chronic bowel complaint is a known sequela of opium eating in India M Sambuc does not think intestinal parasites have much to do with liver abscess

As for appendicitis (which M Sambuc says is ncommon cause of multiple liver abscess in Europe), it is an uncommon cause in Tonkin He has no belief in a biliary lithiasis having any ætiological connection with liver abscess

As for malaria (paludisme) its influence is doubtful and the hepatitis fever is often mistaken for malaria One case he is inclined to attribute to a blow on the liver due to fall from a horse

In 15 cases the liver weighed from 1680 grammes to 2500 grammes, and in most of these cases the abscesses were multiple In 102 cases the abscess was on the right side of liver in 10 cases, in all cases the abscesses were multiple.

We recommend this valuable article on liver abscess to our readers.

#### THE BRITISH JOURNAL OF SURGERY

WE welcome the first number of this new British Journal to be devoted to Surgery (No 1 Vol 1, July 1913 Bristol John Wright & Sons, Ltd) It is published under the auspices of a distinguished band of Surgeons in the United Kingdom and the Editorial Secretary is Mr E W Hey Groves of Bristol The subscription will be 25s per annum, or 7/6 per quarterly number The first number is introduced in a foreword by Mr Rickman Godlee, the President of the College of Surgeons, and a frontispiece is added of the greatest of Surgeons, Lord Lister

We quite agree that the time has come for a British Journal devoted to surgery, and this is the justification for adding another to the ever-

increasing list of medical periodicals

An appeal is made to Surgeons in India for help, and we would have been glad to see the name of at least one Surgeon in India on the list of the Editorial Committee

The first issue is elegantly got up and beautifully printed and well illustrated. It contains good articles by D. Newman of Glasgow on symptomless renal hæmaturia, a plea by D'Arcy Power for earlier gall-stones operation. Other articles are by Sampson Handley on Butlin's operation on the tongue, by Gask on bone-grafting and one by Jones and Alwyn Smith on rupture of the crucial ligaments of the knee and on fracture of the spine of the tibia. An interesting teature is an account of a visit to Surgical Clinics at home and abroad, the first being MacEwen's Clinic in Glasgow.

We wish the new venture every success and commend it to the notice of Surgeons in India

#### PAPERS BY MEDICAL OFFICER OF U, S A ARMY

The Surgeon-General, U S Army, has published (Bulletin No. 2, Washington Govt Printing Office, 1913) a useful collection of the papers read by Medical Officers of the United States Army at the 15th International Congress held last September at Washington, U S A, and it is proposed to publish similar bulletins every quarter We commend this publication to the notice of It consists of 18 excellent papers, among which we may mention the three papers on the value of anti-typhoid inoculation in the pievention of typhoid, two practical papers on the prevention of venereal disease, and several on the personal hygiene of the soldier Other papers of more general interest are that by Captain Craig on the relation of parasitic amorbie to disease and one by Captain É B Vedder, on the prevention In his amœbæ paper Captain Craig of ben-bern concludes

"1 That entamoba coli is a haimless commensal

in the human intestine

2 That E histolytica and E tetragena are pathogenic and give rise to amorbic dysentery E tetragena is now believed to be identical with E histolytica.

- 3 E coli, E histolytica are strictly parasitic species and have not been cultivated
- 4 The parasitic species (which have not been cultivated) are parasitic. All the cultivated species differ greatly from the parasitic amobic genus Entamobo:

In the American Journal of Public Health (February 1912), Dr S T Darling of the Canal Zone, gives the following details of a mosquito larvacide which he claims to have the advantages of cheapness, high larvicidal and germicidal power, miscibility with water, and uniform composition"

The larvacide is prepared from crude carbolic acid, a substance which as usually supplied contains from 5 per cent to 30 per cent tar acids, together with a large amount of inert neutral oils. The crude acid is immiss cible with water and is a very inefficient disinfectant on account of its inability to come into intimate contact with microorganisms. When, however, the crude carbolic acid is made into a liquid soap with resin and alkali by means of heat, a product results which emulsifies upon the addition of a large amount of water. If the germicidal value of the emulsion is determined by the method of Rideal and Walker, it will be found to be greatly enhanced, frequently being from two to five times greater than that of pure carbolic acid

The product is not only a most effective destructive agent for mosquito larvæ, but is a valuable cheap disinfectant

Method of manufacture To insure the manufacture of a uniform product requisitions call for crude carbolic acid of a specific gravity not greater than 0 97 and to contain not less than 30 per cent tar acids. Each consignment of crude carbolic acid received is assayed at the Laboratory to determine its specific gravity and percentage of tar acids, for it is necessary to keep the product of a specific gravity approximately that of water so that it will diffuse rapidly and not sink to the bottom nor remain on the surface

One hundred fifty gallons of crude carbolic acid are heated in an iron tank having a steam coil with steam at 50 pounds pressure. Two hundred pounds of finely crushed and sifted common rosin are dissolved in the heated acid and then 30 pounds of caustic soda dissolved in 6 gallons of water are added. There is a mechanical stirring rod attached to the tank. The product is ready in a few minutes, yielding about 34 barrels.

Cost of manufacture, August 1999

Amount manufactured, 14,600 gallons (292 barrels)

	•
12,600 gallons crude carbolic acid at 12 per gallon	\$1,512 00
12,300 pounds 10sin at \$2.48 per hundred	305 04
2,550 pounds caustic soda at \$3.70 per hundred	94 33
Two tons coal, \$5 00 per ton Labor	10 00 92 46
Supervision .	50 00
Total	<b>52,063 83</b>

Cost per gallon, \$0 1413 (i e, 72 annas per gallon)

The germicidal value when tested with B typhosus in an aqueous emulsion of the larvacide has an R D coefficient of from 2 to 5

As a mosquito larvacide it is used by spraying an aqueous emulsion (one part of larvacide to five of water) over the surface and along the margins of pools and ponds or other mosquito breeding places so that the resulting dilution of the larvacide has a thin milky opalescence

James, of the Canal Zone, writing in The Journal of Infectious Diseases, Chicago, states that "doses of 45 grains quinine daily (in doses of 15 grains) for ten days has practically eradicated recurrent malaria among Americans working in the Canal Zone" His article on relapses in malaria is good reading

We understand that the Government of India propose to raise the percentage of leave reserve tor I M S officers from 20 per cent, which has proved woefully deficient to 25 per cent, and we hope the 25 per cent will be calculated on the total number in a province, "pucca" and "temporary." Temporary men need leave too

The American Medical Association through its Council of Pharmacy and Chemistry are doing splendid work in fighting quack and patent remedies. In their annual year book of New and Non-official Remedies (1913), the profession have sent before them a complete and impartial account of all new remedies which must be of great use to the practitioner, and especially in India where a consultant is valued more for his prescription of some novel drug than for his advice or experience. This book, and the Reports of the Chemical Laboratory of the A. M. A. are well worthy of attention.

It is even more complete and even more useful than the two well known volumes on Secret Remedies published by the B. M. A.

WE have received from Capt C A. Gill, IMS, and will publish in next issue a full and interesting account of Tropical Medicine at the recent Ghent Exhibition

#### Reviews.

The Surgical Clinics of John B. Murphy, MD, at the Mercy Hospital, Chicago.—
Published by W B Saunders & Co

This first number of the second volume of chinical lectures maintains the reputation of a series that bids fair to become classical. Lucidity of thought and expression, terseness, dogmatism of teaching, and a certain trans-atlantic quaintness, make each one of these lectures profitable reading, but with all his dogmatism in matters on which he has a right to be dogmatic, Dr. Murphy has a generous appreciation of the work of others, as is shewn in this volume by his references to the work of Arbuthnot Lane and Rutherford Morrison among English surgeons

The material is so varied at the Mercy Hospital that the range of subjects is so extensive even in this single number as not to permit of individual

notice Each lecture is obviously a stenographic reproduction of what was said before, during and after a special operation. There is an atmosphere of realism about them all that ought to appeal to students, and therefore we should like to see this series in the library of every medical school. All are worth study, but we would invite special attention to the lectures on fæcal fistula, acute appendicitis and laminectomy

We regret to have to say it, but unless these Clinics are able to maintain their original high level their utility is doubtful and the outlook for the series does not seem hopeful

Ionic Medication.—By Lewis Jones H K Lewis, London

In this little book Di Lewis Jones his embodied the recent additions to knowledge in this now much practiced branch of electro-therapeutics

The theory of the migration of the ions of both the metal and the acid radicle of any salt is lucidly explained as well as the somewhat complicated secondary reactions which take place in the tissues A table is also given shewing the electro-chemical equivalents in order to indicate the amount of each substance liberated by the current and the velocities of penetration in the tissues. The book then deals with each ion separately, pointing out the conditions in which it is applicable and the method of application with an actual record of cases part of the work which will appeal most forcibly to the therapeutist, for it offers a means of treating with success, conditions which frequently dety the physician's battery of drugs, and notably among these are to be mentioned the salicylic ionization in sciatica and quinine.

Medical Electricity -- By Lewis Jones Sixth Edition Lewis, London, publishers

During the space of seven years electro-thernpentics have mide great strides, and the new edition of Di Lewis Jones' valuable text-book has undergone considerable amplification bringing it absolutely abreast of the most recent methods and theories Ionic medication has made great advances and is dealt with fully, as also is diathermy. The fact that electrical effects on the tissues of the body are now divisible into two classes the ionic and the thermal has enabled the author to present new facts as regards treatment with a clearer expectation of their probable effects The scope of the conditions amenable to electrical treatment is much enlarged, considerable space heing devoted to morbid conditions and their mode of treatment The latest experimental research is not neglected such discoveries as the 'electric sleep" of Leduc being described and discussed

The new edition will be found an invaluable guide to the many practitioners who make use of electricity in their treatment of disease. Perhaps of all ions the salicylic is the most successful it is applicable in neuritis, gouty arthritis

<sup>\*</sup> Chirago 1913 Piess of Aner Medl Assoc, 535 Dear born Avenue

neuralgias, fibiomyositis and numerous allied conditions

The ions of chlorine and iodine open up a field in the treatment of scar tissues, and the work in this direction of Desfosses and Martinet on the use of chlorine ions on joints stiffened by injury or inflammation is quoted

The book will be found a valuable guide to those practising electrical treatment and the fact that some unsuccessful cases are mentioned, as well as the more numerous instances in which the author has met with success adds to the convincing tone of the work

Lewis's Pocket Case Book —We have received from Mr H K. Lewis a new Pocket Case Book designed for the use of students and practitioners

The book is neatly bound in limp cloth and the page measures 5 in ×5 in. It is arranged for 25 cases, four pages are allotted for each case and the headings are arranged for the record of the usual particulars, including Personal History, Family History and Present Condition

There are also diagrams for the marking of physical signs, space for diagnosis, prognosis and extra space for the record of treatment and progress, including a miniature temperature chart which should be very useful

The price is 1/6 net

#### Researches into Induced Cell Reproduction and Cancer and other papers —(John Murray, London)

This is Volume III of the John Howard McFadden Researches and the names of the authors are Dis H C Ross, J W Cropper, E H Ross, H Bayon, S R. Mowlgavkar and Col E Jennings, IMS A number of the papers in this volume are reprints from various publications

This report includes an account of certain applications of the "Jelly Method" to problems in cytology Should this method possess all the advantages claimed for it, it should prove of great value to cytologists, especially those engaged in the difficult subject of cancer research, and we will await with interest the results of further ex-

persence with the method

In the volume there are some novel and somewhat startling conclusions in regard to the etiology of syphilis In the first place we are asked to give up, the names Treponema and Spirocheta for the parasites and to call them Lymphocytozoon pallidum, in the case of human syphilis, and, the "honour" of being the only further, host of the syphilis parasite can no lonbe claimed by man, because we are informed it is shared by the Guinea-pig (Lymphocytozoon cobayæ), rabbits and hares (Lymphocytozoon lepous), rats (Lymphocytozoon muis) and even by the humble earth worm (Lymphocytozoon lumbrici) In this connection an interesting question arises, do these various animals, harbouring the parasite, give a positive Wasserman reaction? This subject might, perhaps, prove of interest to Serologists. There may be some technical difficulty, however, in getting the required amount of serum in the case of earth worm to test the point.

Diseases of the Skin.—By David Wassi, London, 1913 Demy Svo 29 Illustrations Price 6s net Ballière, Tindall & Cox

This is a small and practical book for students and practitioners on diseases of the skin written by Dr. Walsh, the senior Physician to the West-

ein Skin Hospital, London

We think there is room for such a simple and concise handbook on diseases of the skin brief on its accounts of each disease but ably sums up the main facts that are known. The various tropical skin diseases are not neglected, we learn that the author implicitly accepts Di Sambon's theory of pellagra. On the subject of syphilis, there is a good chapter He admits the powerful aid of Salvaisan, but "mercury is always necessary " "The best plan is to give an injection of '606,' and if the symptoms disappear, apply the Wasserman test—and should this be positive give 6 intramuscular injections of grey oil at a Leave off for 6 weeks and week's interval alternate in that way for 2 years"

The book is a good one, it is not linge but will be found to contain enough for the ordinary

pracfitionei

Aids to Surgery.—By J Cunning, FRCS Thud Edition Bailliere, Tindall and Cox Price 4s net

In the 9 years of its existence this wonderfully complete little book has come into its 3rd edition and its 9th reprint. Nine editions in 9 years is surely a hallmark of success, and the present edition will be found to have incorporated in its 410 pages, most of the advances in surgery since the last edition was written. It is a marvellously compact "tabloid" surgery and should be very useful to students to revise their work before an examination.

Flatulence and Shock —By F G CROOKSHANK,
MD, MRCP Pages 47 Demy 8vo Price 2s
net H K Lewis, 136, Gower Street, London

THESE lectures look at the subjects from different points of view and are very readable

The source of the gas in flatulence is discussed and the views of those who put it down to "fermentation," "neurosis," etc, are criticised

The relations of flatulence to many morbid conditions are mentioned and examples from veterinary surgery are quoted

The hints on treatment are valuable, but we should hesitate to prescribe the author's remedy in his own case, ie, creme de menthe very freely

The lecture on shock has some interesting re-

muks on the variety known as delayed

There is a goodly list of references to various papers which should prove useful

The Conservation of the Child—By A HOLMES, Ph D Philadelphia and London J B Lippincott Co (Agents for India, Butterworth and Co, Hastings Street, Calcutta)

This is a remarkable book, far ahead of any ideas prevalent in India on the treatment of backward children and indeed in advance of anything we have seen in Europe. In the United States the problem of the "misfits" has been most energetically taken up and psychological clinics have been started in several places, of which the clinic in connection with the Pennsylvania University is the pioneer having been started 16 years ago

This monograph aims successfully at giving a practical description of the inauguration and operation of psychological clinic. It gives systems of mental tests and fully describes the methods of making them. The army of misfits is an enormous one and numerous institutions in many countries are doing something to "conserve the

child" the greatest asset of any nation

The book is divided into chapters dealing with history, the constitution of clinic, the classification of cases, the classification of moral deviates, etc The book is well illustrated

It must long remain a classic and a manual for such clinics, and we condially recommend all interested in this subject to read this book. It will open the eyes of the ordinary medical manual show him how very much remains to be done before we can successfully apply psychology to the mental ills of children.

Tuberculin Diagnosis and Treatment—
By F M POTTENGER, Medical Director of the
Pottenger Sanatorium, California St Louis, 1913,
C V Mosby Co

The author here gives his experience of tuberculin after using it for 15 years. The first part
of the book deals with the use of tuberculin in
diagnosis, and the attempt is made to solve the
difficulty as to the presence of tubercle in an
active or mactive state by the rate of appearance
of the inflammed area arising in a position Von
Priquel reaction—the conclusions, if confirmed,
should aid considerably as to whether in a
suspected case active treatment is called for
In the subcutaneous test a single test dose is
preferred in opposition to the practice of most
inthorities who, following Koch, use a sequence
of doses. After his long experience the author
can definitely claim that he has never seen any
names arising from this test.

In treatment tuberculm is claimed to be of use in practically all stages of the pulmonary disease. A clear description of what tuberculm may be expected to do is given, and it is pointed out that much of the reputed ill success following its use in many hands is due to a want of appreciation of this. The treatment of tuberculosis has its aim the stimulation of the existing focus or foci to heal, and secondly, to prevent its spread and tuberculin aids in both these aims

The essentials for success are laid down as 'individualization, size of dose, method of increase and interval" together with a full appreciation of the underlying disease conditions by the physician. The author pertinently remarks that the man who determines to try tuberculin should not do so to test it as a remedy but rather to test his own ability to use it—with this we agree. Tuberculin is not on its trial, and as the author points out no physician who has ever used it thoroughly has ever discarded it. The book is a useful and readable addition to tuberculin therapy and should find a place equally in the general practitioner and specialist bookshelf.

#### Microphotographs of Spirochetæ, Entamobæ, Plasmodia, Trypanosomes, Leishmania, Negri Bodies, and Parasitic Helminths

This is the first of a series of Bulletins to be usued by the Surgeon-General of the United States Aimy The micro-photographs number over 60, and naturally enough they vary in The best are probably those of the ezcellence merozoits of the parasites of tertian and quartan malana, of the macrogamete of subtertian malana, and of a section through the head of a Necator americanus attached to the mucous membrane of the gut The micro-photos of helminth ova are disappointing, being marred by surrounding diffusion rings, that of Trichuris trichiura having as many as 7, while the rings round the ovum of Oryumas vermicularis are so sharp that it is impossible to tell where the actual outline of the egg lies It is a pity that the rules of the International Code of Zoological Nomenclature are not followed The accompanying text describes clearly and concisely the methods to be followed in the preparation of specimens similar to those whose photographs are reproduced

Golden Rules of Diagnosis and Treatment —
By H A Cables, M.D St Louis, C V Mosby
Co Second Revised Edition, 1913 Price 2 25
dollars

We spoke favourably of the first edition of this book and we find the second edition has been entirely rewritten and revised. The first edition proved very successful. It is intended to furnish a quick means of ready reference for physicians who at the moment have not the time for more extensive reading. This book provides a ready reference on many points of diagnosis and treatment. The suggestions for treatment have been gleaned from many authoritative sources. It is well and clearly written and admirably printed Prescriptions are given freely, and it will be, we believe, found practical and useful to the busy physician.

Diseases and Injuries of the Eye -By W. G. Sym. London A. & C. Black, Bombay Macmillan & Co. Price 7s. 6d net

This is one of the volumes in the excellent Edinburgh Medical Series and is written by Di

W G Sym, the Ophthalmic Surgeon, Edinburgh

Royal Infirmary

The book is an excellent one, and will be most useful to students and general practitioners. The teaching is sound, obscure points and disputes in avoided. There is a short but useful chapter on sight requirements for the public services. The illustrations are good and are numerous. On the whole, we have been very favourably impressed with this useful book. It will prove a sound and reliable minual for students.

A Text-book of Midwifery—By R W John stone, M D London Adam and C. Black, Bombay Macmillan and Co Price 106 Crown 810 264 Illustrations, 1913

THIS IS a volume in the Edinburgh Medical Series by Di Johnstone, Assistant to the Professon of Midwifery in Edinburgh University claims to be a concise and practical presentment of midwifery for the student and practitioner There are so many good manuals of midwifery that it is difficult for any new book to displace one of them, but if any book does so this one should as it is wonderfully complete, accurate and representative of the best opinion of the day Any student who masters this volume has no need to fear the examiner, and the teaching is sound and practical We note that in accordance with modern views the author advocates the use of abdominal examination in preference to the "P V" methods There are useful chapters on care of the infant and good sound teaching on the use of the forceps and various operative in-Pituitary extract is praised and also ter fer ences "einutin" and "aseptic eigot"

The book is extremely well illustrated. It will no doubt turn out to be a successful and reliable

student's manual

First Aid —By F J WARWICK AND A C TUNSTALL 8th Ed Bustol John Wught & Sons, Ld, 1913

This is the eighth edition of this advanced ambulance hand book, which is recognised to be by all ambulance workers as concise and complete as could well be. This new edition has incorporated the new Stretcher Drill from the R A M C Manual (1911)

It is extremely well illustrated, but we have always been of opinion that the amount of knowledge contained in an advanced manual such as this is entirely beyond the scope of ambulance work, ie, advanced "first aid" is not far removed from professional knowledge

A Book for Mothers — By Mrs A M Usher London J & R Churchill, 1913

This is a most practical and useful little book by Mi Usher, the mother of a large family. It has a preface by Di F B Rutter, Frees, and is really a capital book for mothers, homely in style and practical in advice and full of little points unknown or unrecognised by the family practice medical man

Mrs Usher says the book has been written entirely for mothers, but it will be of use to nurses

and medical men need not despise to learn hints from its pages. It is one of the most useful book that we have seen on its subject

Surgery Its Principles and Practice—By various authors Edited by Witliam Williams Kffn, Md, Lld Vol VI With 519 Illustrations Philadelphia and London WB Saunders Company, 1913, pp 1022

This volume entitled the Newest Surgery is unique in that in it the attempt is made, and that successfully, to bring up to date the preceding 5 volumes, the first of which was published in the year 1906. Consequently, in it, each chapter simply contains supplementary matter to bring corresponding chapters in the previous volumes abreast of the present status of Surgery.

For instance, the 1st chapter in the volume under review, chapter 87, on inflammation, and written by Professor Adami is supplementary to chapter 5, Vol 1, and so cannot be considered as a continued narrative but must be rather regarded as containing notes amplifying and bringing up to date the original chapter, thus rendering the perusal of both chapters necessary for a thorough modern conception of inflammation

Here we find incorporated Opie's latest work on inflammatory phenomena and the bearing it has on the composition of exudates. The rationale of the treatment of chronic ulcers with Scarlet Red is explained, that dye being one of the "anteries" described by H. C. Ross in his experiments on the induced multiplication of cells.

Di Fiaziei in chapter 89 lauds the use of magnesium sulphate as a symptomatic remedy in tetanus. We personally can support his praise, having found it to have an extraordinary influence on the spasms. One case we so treated with spinal injections clamoured for their repetition, as he thus each time obtained immediate and perfect relief for a period of some 12 hours.

Turner Thomas quoting much recent literature on Vaccine Therapy in the chapter on Surgical Tuberculosis, writes —"There is very little reason for thinking that they (vaccines) are at present even adjuvants to our therapeutic measures"

He however goes on to state that "there is abundant reason for thinking that the future treatment of these conditions will be much more facilitated by vaccine therapy than they are now." The Opsonic Index he estimates to be of but little value being one of that ever increasing band who prefer to rely on the clinical condition of their patients for appropriate dosage. The treatment of spastic paralysis by resection of posterior spinal nerve roots as advocated by Forster is gone into by Dr Woolsey.

The Surgery of the Pituitary Gland takes up some 40 odd pages, its anatomy, physiology and pathology, etc, being all most admirably described in a chapter terminating in an excellent

bibliography covering 31 pages

Recent work on the Para-thyroids is dealt with by C H Mayo of Rochester, whose name alone should vouch for the excellence of the article

Mayo Robson is responsible for the chapter on Gastric Surgery, in which he reviews the various methods of endoscopic examination of the He points out the ease (1 fact for which we can vouch) with which even beginners can recognise what is seen by the Hill-Heischell gastioscope  $\mathbf{A}\mathbf{n}$ excellent account of the gastile lymphatic system is included in this chapter

We quote the following from the article on Surgery of the Kidney by Di Ranshoff -"The view, entertained until quite recently that hydronephrosis is usually the result of a chronic obstruction needs modification" "It has been shown that the accepted view that hydronephrosis can result only from chronic or intermittent ob-

struction is no longer tenable"

An easily understood account of the Rotation and Barany's tests for the integrity or otherwise

of the labyunth is given in chapter 137

Under the Surgery of the Eye we find an even more extended description of Smith's operation than was given in Vol 4 The operation seems to be more popular in America than it is in England

Some valuable rules for Resuscitation from Electric Shock as formulated by a Commission appointed to deal with that matter are incorporated in the chapter on the Surgery of Accidents

We were unaware that division of the spinal accessory ever caused prealysis of the deltoid

muscle as noted on page 325

During our perusal we have noted the following enters -

On page 37 surely A Muller should read E Muller

On page 158 "anoci association" should be "noci association" in the following sentence "A patient, managed in this way, will have had excluded the various harmful influences or associations which can be best designated by the word "anoce association"—that is nocuous or harmful association

On page 210 we find Hematomata spelt Hemotrinata

On page 324, Fig 133 really depicts Kuttner's musculo-cutaneous flap and not Quervain's, and similarly Fig 134 depicts Quervain's and not Kuttnei's musculo-cutmeous flap

Thyroidectomy is spelt Thyrodectomy page 339

On page 389 appears Thoracoplasy, and on page 651 Hemiglobin

In the text on page 924, Fig 45) should be

written 456, and Fig 456 should appear as 458 Perhaps Impossible on page 35, and Manuver

on page 606 are Americanisms

The book which as pointed out before, is best read in conjunction with the preceding 5 volumes, certually brings the subject up-to-date and might with advantage be read by students working for the higher examinations, and those intending to specialise in Surgery It is, however, too advanced for the man endeavouring simply to obtain a qualification and for the general practitioner

The Principles and Practice of Obstetrics — By JOSEPH B DE LEE, MD delphia W B Saunders London and Philadelphir Saunders Company, Pp 1060 Price, cloth, 35s net

ALTHOUGH this volume cannot nightly claim the weight which frequent editions lend, being simply an outgrowth of a volume entitled ' Notes on Obstetrics" which has for some 14 years been used as a text-book at the author's school, it can nevertheless be said to be a book which will easily hold its own in the department it treats of

In our opinion it is a book which can be heartily recommended both to the practitioner and to the senior student, being emmently a practical book and the outcome of 21 years'

experience as a teacher

The facts are well arranged and the fundamental ideas are not lost in a cloud of detailed observations

The book is business like and to the point from start to finish and will well repay anyone's perusal

The illustrations numbering some 906 are excellent and extremely useful in rendering the description of operations easily intelligible

The subject-matter has been divided into 4

The physiology, conduct and pathology Pregnancy, Labour and the Puerperrum and Operative Obstetrics

At the end of chapter 3 the various theories as to the determination of sex are gone into, but we find no mention of the theory of Ceselieuski

As regards positional treatment of the patient advocated to aid forward rotation of the occiput in occipito-posterior positions, and of the chin in mento-posterior positions and to convert brow into normal vertex presentations, we do not see that the positions recommended by the author exactly coincide with the observations made by Baudelocque, observations which the author quotes on page 586, viz, "Bandelocque called attention to the wrong direction of the uterine forces when the nterns was oblique to the inlet- if the back falls over to the side of occiput, the chin extends, and if, now, uterine action commences, the feetal axis pressure is exerted in the direction of the chin increasing the extension even to the production of a face presentation 584 the author advocates for persistent occipito-Yet on page posterior positions that the woman lie on the side to which the occiput points as this aids flexion and consequently favours rotation Baudelocque, if the woman so lay, the back According to would tend to fall over to the side of the occiput and extension not flexion would be the outcome

Dakin, we note, for occipito-posterior positions, says that the woman ought to be placed on the side to which the front of the child looks as you thus aid flexion and so iotation forward of the

occiput

As different authors hold diametrically opposite views, the only conclusion, one can come to, is that postural treatment can have but little effect one nay or the other

The chapter on Extra-Uterme Pregnancy is good as is also the section on the treatment of cases of contracted pelvis where the question, of what should be done in each particular case, Cæsarian section, symphysiotomy, craniotomy, forceps or version, etc., is carefully gone into, and the advice given well tempered and excellent

Lists of articles needed for labour, rules for the pregnant woman and instructions for the obstetric nuise are all excellent and should prove most useful to the practitioner in saving both time and

trouble

We have come across the following errors — On page 161 in the description under fig 182 l should be e

On page 448 spanemia is written for anemia, on page 485 leutic for luetic and on page 774 pacenta for placenta

On page 954 in the text Fig 836 p 939 should

1ead Fig 836 p 949

On page 742 in the illustration the needle is shown going through the upper lip of the wound hist and then through the posterior lip, whereas in the description the needle is described as going through the posterior lip first and then through the upper lip

We can heartily recommend this book to both the student and the practitioner The former, be he a junior, can omit reading less important matter and details of treatment which would be necessary for the practitioner to read, in that such matter and details are printed in a somewhat smaller type than is used elsewhere in the book

he 'Nauheim' Treatment of Diseases of the Heart and Circulation—By Leslie Publishers Baillière, Tindall THORNE THORNE & Cox Fourth Edition Crown 8vo, pp viii Price, 3s 6d and 104, figs 55

THE fact that this book has reached a 4th edition is an evidence of the success of the treatment it describes, and of the clarity of the The Nauheim treatment by baths and the Schott exercises are described, the book also contums a chapter on the selection of cases suitable for the treatment, notes on a number of cases, and is fully illustrated The whole forms a most useful little book, on which the only adverse criticism we have to make is that we can find no description of the composition of the effervescing bath, though all other matters dealt with are given in full detail

#### SPECIAL ARTICLE

#### THE DRESS REGULATIONS, IM.S

WE are indebted to Colonel Bruce Seton, VHS, INS, for the following notes on the dress regulations for the service, taken from the newly revised I A Regulations, Vol VII —

The new A R I, Vol VII, just published, contains the latest orders regarding Dress of the

Service.

Surgeon-Generals wear uniform as laid down for the Army Medical Service, except is regards pattern of buttons, some minor details in the mess jacket and mess waistcoat

The full diess of Colonels may be taken as the IMS standard, points of difference for

other ranks being specially noted

Full Diess ColonelReview Order

Boots, mounted Boots, dismounted Gloves

Blucher Wellington

White doe, or buck, at levees and balls, white kid

Great coat Helmet Plumes

Diab universal (new) White Wolseley

Black, swan (not woin by other ranks)

Pouch, regulation (slightly different pattern for other ranks)

Pouch belt, regulation (slightly different pattern for other ranks)

Spurs with Blucher boots jack spuis with Wellingtons box spuis

Sword and scabbard, regulation

Sword belt, with 3 stripes of embroidery (other ianks 2 stripes)

Sword knot, regulation

Tunic, regulation, with 2 bars on cuff, and braiding on collars and cuffs (Other ranks only have one bar on cuff, and no braided eyes on collar and cuffs)

Thousers, when dismounted, red stripe,  $1\frac{3}{4}$  inches Pantaloons when mounted, 1ed stripe,  $1\frac{3}{4}$  inches

#### Hot Weather Full Dress, White

Full dress, head dress Belt, sword and pouch White frock, with white collai (optional) Trousers, white, dismounted Pantaloons, cloth, white mounted Gloves are not worn

#### Hot Weather Full Dress, Khaki

Helmet, khaki Wolseley pattern, with plain Plumes, spikes, chains and badges khaki pagii are not worn

Jacket, regulation, khaki, diill or diab serge, universal with step collar, open fronted 4 pockets and a ticket pocket outside and an inside watch

With this jacket a white double collar and black silk tie, tied in a sailor knot will be worn, on manœuvies and field service a tuin down khaki collai ind khaki neck tie will be woin with khaki shirt

Gorget patches-Surgeon-Generals have black velvet with a gold line and button, Colonels black velvet with a scarlet line, all other ranks dark blue with black line and a corps button These patches are worn on the khakr jacket

Regulation, but with brown scabbard Sword and brown leather sword knot Regulation "Sam Browne," with

Belt2 braces Breeches, khaki drill or Bedford and with Blucher boots, or with ankle boots and putties or garters are worn when mounted or dismounted, or khaki trousers with Wellington or ankle boots when dismounted

Gloves are not worn

#### MARCHING ORDER

#### No 4 Service Dress

Boots, ankle, with putties of plain garters Breeches, helmet, jacket, belts as for hot weather khaki

Gloves (if ordered)
Great coat (if ordered)

Havresack Water bottle

On field service a first field dressing, identity disc, revolver and ammunition pouch are also carried

#### DRILL ORDER

#### No 5 Service Dress

As for marching order, except that trousers may be worn when dismounted, and havresack and water bottle are not carried unless ordered

#### No 6 Mess Dress

Mess jacket, regulation, 3 inch lace, with white linen collar if an open waistcoat is worn

Mess waistcoat, regulation, as an alternative an open white washing waistcoat, without lapels, and with 4 small gilt buttons of departmental pattern may be worn

Gloves Trousers At balls, white kid As for full dress

#### No 7 Hot Weather Mcss Diess

White mess picket, regulation K imarband, scarlet White overalls, black foot straps Wellington boots

#### No 8 Undress

Forage cap Universal pattern with black velvet band. A white cap cover will be worn

Frock, serge Universal pittern—with white linen collar

Frock coat Universal pattern—white collar

optiona

Other articles as in full dress, pouch belt not worn. In this order of dress either the white helmet or the forage cap is worn, normally the frock coat is worn, with white gloves, with the frock the gloves are brown. The full dress sword belt and slings are worn outside the frock coat, but with the serge frock the slings are worn, on a web waist belt, under the frock.

#### Horse Furniture Universal pattern

WATER PROOFS Atholl giev, universal pattern

#### STAFF DISTINCTIONS

Arguillettes are worn with tunic and frock coat by the Deputy and Assistant Directors of Medical Services, Army Headquarters, and by I M S officers of the Army Department, ie DG, 1MS, DDG and ADG, 1MS These also wear the staff gorget patch

Deputy of Assistant Directors of medical services in brigades of divisions may wear the frock continusted of the tunic when the order of diess is "Review order—staff in blue"

#### MINIATURE MEDALS

Worn with mess diess, and in certain specific circumstances in plain evening diess

#### RIBANDS OF MEDALS

Riband not to exceed one inch unless clasps render it necessary, uppermost clasp to be 1 inch below top of riband

In undiess they are worn, sown on to the frock or frock coat—with white or khaki they are worn on a bar

#### Medical Society.

#### BRITISH MEDICAL ASSOCIATION (PUNJAB BRANCH).

AN Ordinary General Meeting of this branch was held on the 22nd July, at 4-30 PM, at "Benmore," Simla, Col C J Bamber, MVO, IMS, IGCH, Punjab, presided, and there were some twenty members present Major Austin, RAMC (1etd), read a very interesting paper on "Fasting as an Ard in the Prevention and Cure of disease" and showed Mr A as a successful result of this treatment—

Mr A aged 49 yrs
Weight

Measurement round
abdomen
Blood pressure
Respiratory capacity

Before and After Treatment

17st 1½lbs
13st 2½lbs
47½"
38'
150 mm
110 mm
230 c r
250 c r

This patient had undergone a complete fast, dunking water only, for 31 days From the 32nd to the 42nd day he subsisted on a few mangoes, peaches or grapes He then began to get a return of appetite and started two meals a day, taking less quantities of food than he had been accustomed to take before He had put on 9lbs since he had recommenced eating, but thought he was now not increasing any further in weight. While he had reduced the number of cigarettes he had been accustomed to, he had not given up smoking throughout his treatment He thought his mental processes had been improved. He had taken vigorous walking exercise throughout, and while before he could not by stooping leach to closes than 11" from the ground with his finger tips, he could now touch his toes The treatment in his case consisted in complete abstinence from food, plus aperients and enemata in the earlier stages

He stated that he felt fitter than he had done for years, and while before the slightest chill brought on an attack of fever, now he could indulge in very cold baths and feel the better for them

Major Austin, in his paper emphasised the difference between true and false hunger former had no morbid feelings as a sinking sensation, or headache, or faintness, which were really the results of indigestion or auto-intoxication from undigested and fermenting material in the stomach Such sensations could be done away equally well by a dose of mag sulph as by taking more food

He insisted that most people suffered from undue frequency of feeding, and in consequence the food was in a constant state of fermentation Prolonged periods of rest for the stomach were necessary and he advocated two meals a day, breaklast being taken at the luncheon hour

Leanness might be the result of starving from overfeeding, for it was not the amount eaten, but the amount digested which mattered thin people were also small eaters, but he considered that lack of appetite was tantamount to ill-health and what they required was not more tood but more rest from food

Stoutness again was eating and digesting more than the body could utilise

Lt-Col Braide, IMS, thought that the range tor such treatment would be a very limited one, applicable only to men of exceptional will and staying power

In answer to Lt -Col Austen-Smith, In s., he considered, that in spite of the apparently successful feeding-up methods employed in most sanitoria

better results

In answer to a question by Major Blackham, RAMC, he thought that the reason why the suffragettes so quickly collapsed under starvation was because they abstained from liquids as well as solids and that, as they were not purged, they suffered from auto-intoxication

for tuberculous patients, his method would give

Su James Roberts, IMS, spoke on "Some points in the administration of Chloroform" He amplified Hewitt's dictum that the dangers of chloroform administration were mainly above the laryns, and advocated the use of the finger, in preference to instruments, in freeing the epiglottis in cases where the patient stops breathing under chloroform He strongly advocated the use of Vernon Harcourt's unhaler Lieutenant-Colonel James, IMS, while agreeing with Sir James' 1 emaiks in the main, considered that the reason why we heard so little of chloroform poisoning in India was because of the general adoption of the open method The usual mistake made was in choking the patient by too much chloroform at the start

Major Blackham, RAMC, advocated Schaefer's in preference to Sylvester's method when the patient stopped breathing under chloroform

Lieutenant-Colonel James, 1MS, showed an interesting case for Ineutenant-Colonel Austen-Smith, I vis, of a young man, Mi S aged 26 years, who had had tubercular bursitis over both great trochanters These burse had been excised and slides from them were shown under micros-The patient had enjoyed good health for some time, but had now returned as he had noticed three subcutaneous nodules in the small of his back. The nature of these was doubtful

Colonel James also showed a case of excision of the knee-joint in an Indian He advocated witing, as enabling this class of pitient to get home quickly, also it obviated much pain in the

convalescent stage

Papers by Colonel Hendley, INS, and Lieutenant-Colonel Austen-Smith, 148, were unavoidably held over owing to the lateness of

#### Coppespondence

#### CIVIL SURGEONS IN BENGAL AND BIHAR To the Editor of "THE INDIAN MIDICAL GAZLTTE"

SIR,-Recent events have shown that semiority on the civil list may be successfully uiged as a claim to appointments, which usually go by selection

which usually go by selection

The injustice done therefore to officers of the old Bengal cadie by their supersession by officers of the Eastern Bengal and Assum cadie, some years their juniors in service acquires an importance, that calls for an immediate remedy

The old provinces were characterised by certain features that very markedly influenced the recruiting for them Roughly Bengal was made up of nine Bihar and four Bengal carriers makes the Calcutta appointments

Practically Roughly Bengal was made up of nine Bihai and four Bengal civil surgeoncies, plus the Calcutta appointments. Practically all these were healthy and a few of them, lucrative appointments. Eastern Bengal and Assam, on the other hand, had seventeen civil surgeoncies, many of them unhealthy, while compared to Bengal the appointments were less lucrative than those open in Calcutta. The result was that officers had to wart about say years for admission to the Bengal cadre but could go to Eastern Bengal and Assam with three years or less less

Not only was this the case but owing to circumstances differing in the two provinces, officers were confirmed in Eastern Bengal and Assam with as little as 1½ years' service

Eastern Bengal and Assam with as little as 1½ years' service as against eleven in Bengal
Officers assigned to the Eastern and Northern Commands or the Lower Provinces had therefore the choice of two alternatives (1) To sacrifice the advantages of Bengal and obtain civil employment three years earlier, with the increased emoluments and better furlough pay, or (2) do three years longer military employment with its disadvantages, and wait for the better prospects of Bengal.

There was no prospect of an officer who went to Eastern Bengal and Assam subsequently transferring to Bengal and each officer having the above object in view deliberately made his choice. In no case, as far as we are aware, was a candidate for Bengal compelled to go to Eastern Bengal and Assam.

and Assam

With the rearrangement of the provinces conditions altered The Eastern Bengal and Assam cadre had to choose between Assam or the remaining Eastern Bengal stations, plus Calcutta The Eastern Bengal and Assam officers who now came to Bengal found themselves all to the good They not only had their three years' extra civil service but also the deliberately abandoned Calcutta appointments

were given back to them On the other hand what were the results as far as the old

On the other hand what were the results as far as the old Bengal officers were concerned?

They had to choose between the nine Bihar civil surgeon cies, the rush for which showed their popularity, or the Calcutta appointments. If they choose the latter they had to take the stations of Eastern Bengal, and if the former they had to give up the prospect of Calcutta appointments. Under no circumstances could they have both although they had sacrificed three verrs' civil service to obtain the combination. This was inevitable, under the circumstances but what was not inevitable, was the position assigned to the Bengal officers on the revised Bengal civil list. This added insult to injury, for by virtue of their earlier civil service and earlier confirmation in civil, the E. B. and Assam officers superseded officers several years their seniors in total service. The following table demonstrates, we think, the urgent need for some revision.

need for some revision

The civil list has been numbered consecutively in order to show the relative positions for seniority

to bile ii					
First Com	No	Total Service	Province	Date of en try civil employ	REMARKS
26 7 02 27 1 00 28 6 00 1 2 06 27 6 01 29 1 02 27 6 01 26 7 02 28 6 00 1 9 02 29 1 02 1 9 02 1 -2 05 1 9 04 31 8 03	28 30 31 35 39 41 42 43 44 45 50 53 56 60	Y M 10 8 13 2 12 9 7 2 11 2 11 9 10 8 12 9 10 7 11 2 10 7 8 7	E B & A Bengal E B' & A Bengal  "" "" "" "" "" "" ""	17 8 06 25 3 03 31 8 03 22 5 05 1 2 06 22 3 06 3 8 06 6 10 06 23 7 07 12 10 08 2 10 09 23 3 10 3 3 11 1 4 12	(a) (a) (b) (b) (b) (b) (c)

(a) Both these officers have as long service in civil employ, as the total service of the officer four and six places above them respectively. In one case an officer enters the employ, as the total service of the officer four and six places above them respectively. In one case an officer enters the service on the same date as another officer enters cuil. The former is now six places above the latter and is permanent, whereas the latter is still temporary. This advantage was gained solely by the jumor officer accepting service in E. B. & Assam, under the conditions previously drawn attention to and scoring over the Bengal men on the 16 distribution

(b) All these officers entered civil before the officer, now then senior, had completed the two years' multing service which is laid down as compulsory

(c) These officers have been superseded by no less than four officers, then juniors in service

When the new Presidency of Bengal was constituted, an article have now the form of the service and the service of the

entirely new condition of affairs was produced, and seniority in the new Presidency could in reality only date from the day in the new Presidency could in reality only date from the day it came into existence Previous service in other provinces should only have been allowed to count towards furlough and not towards seniority. Cucumstances had indeed changed so very materially that it would have been quite reasonable to illow an officer to transfer to any other province for which he had been originally eligible.

Under any cucumstances we consider that the vacancies in the new Presidency should have been offered in order of, and had their seniority regulated by, the total service of the officers concerned, that being the order in which all subsequent vacancies will be filled.

The more senior portion of the code could have been

The more senior portion of the cadre could have been made the same as the last civil list before the partition Even this has not been done, and nothing demonstrates the Even this has not been done, and nothing demonstrates the injustice of the present arrangement better than the fact that an officer who was in Bengal prior to the original portion, and who selected Bengal is now several places below an officer who had not entered the service at the time of the partition. If any further proof were needed of the present arrangement if her in the fact that injustice of the present ariangement it lies in the fact that at present, an E B & Assam will presumably have a prior claim to an old Bengal officer, his senior in total service, to

claim to an old Bengul omeer, his senior in total service, to vacancies virsing in Bihar

We do not suggest that the E B & Assam officers should forfeit their civil service of not be eligible for the Calcutta appointments, but we do think that the present list stands in urgent need of revision in justice to the former Bengal officers, and that the officers, adversely affected should be placed in their proper relative positions by a note "To lank for seniority next after"

placed in their proper relative positions by a note "To rank for seniority next after"

The committee who collected and formulated the replies of the Bengal I M 8 officers to the questions of the Public Services Commission recommended that "The position in the Civil List of the Province should be determined by the total service of the officer in the case of all who applied for civil employ without delay, and who have not declined an offer of civil employment"

We would use that in justice to officers of the old Bengal cadic the revision of the present Bengal Civil List on these lines, is urgently called for, without waiting for the report of the Public Services Commission

The above recommendation is the considered opinion of a committee presided over by the Inspector General of Civil Hospitals and consisting of senior officers, well acquainted with the conditions, and in no way likely to be affected by

with the conditions, and in no way likely to be affected by such a revision

> Yours faithfully, A, H PROCTOR. CAPT., I M S.

#### "MENTAL DERANGEMENTS IN INDIA"

To the Editor of "THE INDIAN MIDICAL GAZETTE"

DEAR SIR,—In Captain Overbeck Wright's vigorous letter which appeared in the July issue of your journal—there is one statement, to which your critic feels a reply is necessary and he consequently begs the hospitality of your columns

Captain Overbeck Wright writes "My critic has from the start utterly failed to grasp the fact that, though all insanity is mental disorder, all mental disorder is not in sanity."

sanity

Here, apparently, Captain O W. either thinks your critic incapable of mastering the elementary proposition, that as the whole is greater than its part, the part must be less than the whole, or, he means something that is not so obvious

After reading Captain O W's letter over several times, your critic concludes Captain O W's contention to be that As his book, as mentioned in the preface, is intended to and the student and practitioner in India, in his dealings with certifiable insanity, and that at, in his opinion, certifiable insanity can only arise from to mia, or from exhaustion, brain injury—and loss of the senses of sight and hearing, your critic's statements have no bearing on his book, and "psychology normal and abnormal, is ruled off its pages are irrelevant"

If this attempt to clarify the issues misrepresents Captain Over beck Wright's standpoint, your critic begs his pardon-

but it is the best that he can do

Taking this to be Captain Overbeck Wright's position—therefore, a "preliminary objection," as the lawyers say, may fairly be taken to the title of the book

Waiving this objection, however, your critic contests, now as in his original contribution, the statement or the position that ALL certifiable inquity is due to toximia, or to exhaustion, physical injury to the brain and deprivation of sight and hearing—and, if his memory does not deceive him, the British Medical Journal made a similar remark

Your critic did not deny that in many of the commonest forms of certifiable insanity, and, let him now add, of non certifiable mental disorder as well, those very conditions were the most important causal factors, if not the sole cause But he holds that in many cuses of certifiable insanity, as well as uncertifiable mental disorder, the initial trauma the spark which lights the smouldering slow match which finally fites the mine, will, if one can only work back far enough to find it, turn out to be psychical in nature—a con flict—a wound of feeling—a disturbance of affect

Your critic's object was not to trumpet psycho analysis, which can fight its own battles, and now requires no trumpet ing from anybody. From your critic's point of view, the greatest achievement of psycho analysis has been, not the elaboration of a new treatment for mental disorder, but the flood of light which it has shed upon the growth and make up of the mind, the synthesis of the personality, and the development of individual character and disposition. Un doubtedly, as Captain Overbeck Wrights quotations show, the undue importance which Freud gives to sexual impressions in childhood,—an importance which it is only fair to say, is in a great measure due to the fact that he uses the term in a much wider, almost a different, sense from what we do-has created a prejudice against psycho analysis in Great Britain To all men who have the comage of them convictions and who admire that courage in others, -who try to look facts in the face, without arriere pensce or self decep tion-if that be possible, and who look upon human nature from a scientific and unprejudiced point of view the existence of this prejudice amongst Englishmen must be a matter of regret

Captain Overbeck Wright draws particular attention to the fact that the chapter on Neurathenia and Hysteria in his book, is only there on suffer ince, as "strictly speaking, these conditions do not fall under the head of insanity"

Now that statement (between quotation marks) cannot be allowed to pass without comment. The very making of it gives one to think as to Captin Overbeck Wright's idea of the relationship between mental disorder and certifiable insanity It may logically be held-and is so held by many-including It may logically be held—and is so held by many—including your critic—that, more especially in cases of hysteria and psychasthenia, the question of certifiability or not, depends upon the manner in which these conditions influence the conduct of the sufferer. To say that a case of Grande hysterie, in which the patient, if not tube fed, and nursed with the greatest care, will be dead from starvation in a fortunght—does not constitute insanity—is to talk nonsense—and is an attempt to invest the term "insanity" with an absolute clinical significance which it by no means possesses. and is an attempt to invest the term "insanity" with an absolute clinical significance which it by no means possesses Captain Overbeck Wright himself admits that Neuras thenia psychoses occur, which may run on to secondary dementia, or pass into parandia But he might go much farther, and hold that any form of mental disorder, given

suitable soil and environment-may lead to or finally result in, certifiable insanity. He might refer to Su George Savage, in Allbutt's System of Medicine, Vol VIII (1910), page 593 et seq for a description of "simple hysterical mania"—and to White's "Outlines of Psychiatry (1911), pages 123 and 124 for accounts describing how true paramons may develop from (a) an obsession, and  $(\beta)$  a mental con flict—a genesis as reasonable and satisfying as that from a hypothetical "Metabolic to emia" In the cases of acute "instanty," in its most technical sense—even when obviously "insanity," in its most technical sense—even when obviously due to tovemia, or to poisoning by drugs, before the individual becomes insane—he passes through a stage in which he is merely "mentally disordered". Fortunately many never get beyond the "mental disorder "stage and recover without being certified as lunates. Similarly, when the acute "insane" is recovering his "sanity" he passes through a similar stage before his recovery is complete. In other words, the differentiation between mental disorder which, does not amount to "insanity," and mental disorder amounting thereto is decided by (a) the degree of mental disturbance. (B) the resultant disorder of conduct, and  $(\gamma)$  to some ex tent, the environment in which the individual lives There

tent, the environment in which the individual lives. There is no absolute criterion. One cannot generalise and say "All histories are sane, all melancholics are insane," each individual case must be judged upon its own merits.

Your critic admires Captain. Overbeck Wright's book very much like the curate's egg in certain parts. As a guide to procedure for Medical Practitioners, it applies a long felt want, and ought to be invaluable. But, if Captain Overbeck Wright will excuse the statement of compleming it is too dogman. Wright will excuse the statement of opinion, it is too dogma Propaganda is all right in its proper place—a pumphlet, r paper, a magnzine article, a political speech, even a criticism. But it is out of place in a book designed to help students and practitioners in India. It turns an educational work into a proselytising agency which says "if you accept my help—you must also adopt my opinions," "if you wish to swallow my food you must also swallow my dogin."

Whether the theories which Captain Overbeck Wright so confidently adopts, and the researches on which they are

confidently adopts, and the researches on which they are based, are his own, or Dr Macpherson's, or Dr Louis Bruce's or Dr Maurice Craig's, matters not in the least—what does matter is whether they are true, or generally accepted as such

YOUR CRITIC

#### HEAT STROKE

To the Editor of THL "INDIAN MEDICAL GAZITTL"

SIR,—I notice in the July number of the Indian Medical Gazette that the subject chosen for the next Parke's Memorial Prizers "Heat stroke its Causes, Prevention and Treatment"

For many years past it has been my ambition to write an essay which might win this bronze medal and the 75 guineas and I naturally take an interest in the subject chosen for competition hoping that sometime, perhaps, the Pile Committee may choose a subject with regard to which I possess some special knowledge. Unfortunately they have not yet done so and I giertly fear they never will. This year, how ever I feel that I possess very special qualifications for criticising the subject chosen in that I yield to none in my ignorance of "Heat stroke" its Causes, Prevention and Treatment." and I naturally take an interest in the subject chosen for

When I hist arrived in this country I had an impression that cases of heat-stroke would be about the most common condition I should be called upon to treat. After fourteen years' service I feel that that impression has not turned out correct for although serving in a part of India which has got rieput tion for warmth I have not yet seen a case of got rieputation for warmth I have not yet seen a case of heat stroke nor have I known any person who suffered from it. I have known people who developed headaches after unusual exposure to a high temperature, headaches which usually disappeared after the administration of a few grains of calomel, and I have known people with "queer" heads which became slightly more "queer," on a very warm day and people with other sorts of "heads" said to be due to the heat and I have met people whom the glare of the sun the heat, and I have met people whom the glare of the sun affect so that they require to wear tinted glasses but none of these could be called heat stroke. I have also known of cases of apople y occurring ir typically apoplectic subjects in whom the attack was immediately determined by exposure to a high temperature in a stuffy room or railway station or railway carriage, but these also ought not to be called cases of host strate. of heat stroke

About twelve years ago I did see two cases of supposed About twelve years ago I did see two cases of supposed heat stroke, they were sepoys who; when out marching in the ranks on a particularly waim day suddenly diopped, unconscious and one of them expired very shortly after. To the ordinary observer these were undoubted cases of heat-stroke but the Medical Officer of the Regiment—being Scotch, no doubt—had his doots, and took blood smears from each patient with the result that both smears were found

crammed with the parasites of malignant tertian mulaira Instead of the usual treatment for heat stroke, the surviving and still unconscious sepoy was given quinne intra muscularly and was walking about in a couple of day. Since that time I have seen half a dozen similar cases all of which were malarial. Just recently I was asked by the headman of a village if I would like to see a boy who was possessed of a deal, the symptom of possession being that he had lain unconscious without moving for two days. I went to the village and found the how unconscious as dose went to the village and found the boy unconscious as described but able to morn and with a temperature of 10671. His blood, on examination, was found full of malignant tertian parasites and an initia muscular injection of quimne cast out the devil completely. In the same village a crow was possessed of a particularly malevolent spirit and significantly defenses of many by convent from the house torse of fied its definice of min by cawing from the house tops at an early hour every morning. I was requested to exorcise this also which was easily done with a charge of No 5 I mention this not as a case of heat stroke but simply to show how various are the methods by which devils may be dealt with

Of course cerebral malaria is well known to every medical man nowadays, but I imagine that heat stroke was very much more common in the days before this knowledge was much more common in the days before this knowledge was so universal. In subordante practice I believe that heat sticke is still common, but I have never yet had an opportunity of conversing on the subject with any member of my service who has treated an undoubted case. Are such cases common in any part of India or do they occur at all I ask for information. Perhaps my experience has been peculiar and I admit that having been employed for eight years of my service as a Medical Other of Health my opportunities of seeing cases have been limited, still I should tunities of seeing cases have been limited, still I should certainly have heard and known of some if they had occurred

Yours truly,
T'S ROSS,
MAJOE, I'VS Madras, 17th July 1913 \

#### THERAPEUTIC NOTICES

THE NEW TREATMENT FOR GONORRHEAL INTECTIONS

PHYSICIANS who have had any considerable experience in the treatment of gonori hea and its complications know hose stubborn many of these cases are, how, not infrequently, they resist ordinary routine methods for weeks and months. The average general practitioner encounters these cases with unpleasant forebodings. He realizes that treatment of them is more or less amprical. He experiences a sense of relief when he can bid "good bye" to one of them—when he can discharge it as "cured".

discharge it as "cured"

Is Gonorrhea Phylacogen such an agent! There is a basis for the belief that it is Here are some figures that seem to lend assurance "660 cases treated, 539 recoveries 121 fail mies" These figures pertain to carefully recorded cases, under observation in various sections of the United States and embracing both hospital and private practice. They recorded such complications as generical attitutes, chronic and embracing both hospital and private practice. They include such complications as gonorrheal arthritis, chronic urethritis, vaginitis, epididymitis, orchitis, prostatitis, resiculitis, ophthalmitis, iritis, endometritis and salpingitis. These cases were reported to Messrs. Parke, Davis & Co, producers of the Schafer Phylocogens. The results point clearly to this conclusion. Gonorrhea, Phylocogen is worthy of careful, serious consider ition

#### VIROL (LIMITED)

VIROL (LIMITED)

PIESIDING at the thuteenth annual general meeting of Viiol (Limited), held in London, 10th June, 1913, Mi B S Strains stated that the increase in the sales for the period under review constituted a record the improvement during the past two years being just on 70 per cent. This striking development was due to an advance in all the branches of their business—namely, the hospitals and sanatoria, the general home trade, and the foreign and Colonial markets. The rapid growth of the business had necessitated the provision of further accommodation for the storage of stocks of both manufactured and unmanufactured goods. The new of both manufactured and unmanufactured goods premises taken over in August last proved eminently suitable

for their purposes

The directors, recognising the importance of furnishing the medical profession with all possible scientific data in regard to the bio chemical and physiological action of Virol in the various conditions of health and disease, had establish the various conditions of health and other scientific work in ed research laboratories for this and other scientific work in connection with a food company. Already the medical profession and public bodies all over the country were availing themselves of the services of these laboratories. Additional accommodation was now required and it was intended to

create and equip on the most modern lines a research organisation under the direction of highly qualified and expendenced scientists. This he regarded as a proof of the serious view taken of their responsibility both to the medical profes

view taken of their responsibility both to the medical profession and to the public
"The Optical Works C Reichert, Vienna VIII/2, advise that they showed at the 17th International Congress of Medicine which took place on the 5 12th August at London, among a considerable number of Scientific apparatus also some novelties, and beg to call special attention to their Fluorescence Microscope"

#### Sqrvice Motes.

THE competitive examination for commissions in His Majesty's Indian Medical Service was held on July 21st, 22nd, 23rd, 24th, 25th and 26th, for which twenty two candidates presented themselves Sixteen candidates qualified, and six failed to qualify The following is a list of the candidates, with their medical schools, qualifications, and marks, who seemed the twelve vacancies which were to be competed for --

Marks (Max 5,100) Salub Singh Sokhey, MA, BSc, MF, ChB, Edin buigh, Edin Univ 3,517 tul Kushna Sinha, MP, Calcutta, LRCP, MRCS, DTM & H, Camb, Calcutta Unit 3,392 and London Hosp Subramanya Doi aisamy, LRCP, MPCS, Madras Univ and Middlese Hosp 3,198 James Findlay, MA, MB, ChP, Glasgon, Glas 3,167 Univ Allan Seddon, MB, ChB, Liverpool Univ and London Hosp 3,146 London Hosp

Jyotish Chandra De, MB, Calcutta, LRCP,
MRCS, Calcutta Univ and London Hosp

William Collis Spickman, MB, ES, London,
LRCP, MRCS, St Baith Hosp

Nanalal Miganial Mehta, LM & S, Bombay,
LRCP, MRCS, London Hosp

Charles Huly Powell Allen, LRCI, MRCS,
Madias Univ and Univ Coll Hosp

Peregrine Stephen Brickenbury Langton, LRCP,
MRCS. Middlesev Hosn 3,072 3,061 3,039 2,957 MRCS, Middlesev Hosp 2,943 Robert Moirison Easton, MA, MB, ChB, Aberdeen, Aberdeen Univ Regund Victor Martin, LA, LRCP, MRCS, 2,893 St Muy's Hosp 2,873

" Quantum mulatus ab illo-"

Brigade Surgeov Fdward Selton, Bombay Medical Scivice, retired, died at Southser on 25th June 1913 After taking the LRCS, Edinburgh, and the MD, St Andrews, in 1856, he entered the Royal Navy as Assistant Surgeon, resigning two years later in 1858. He entered the IMS as Assistant Surgeon on 10th February 1859, became Surgeon on 10th February 1871, Surgeon Major on 1st July 1473, and Brigade Surgeon on 15th September 1886, retiring on 1st October 1889. During the Mutiny he took part in the disarming of mutineers at Kidderpur, Bengal, in 1857. He subsequently served in the second China War of 1860, in the suppression of the Taeping rebellion and in the protection of the European settlements at Shanghar, receiving the medal with clasp, and in the Abyssinian War of 1867 68, medical charge of the 3rd Depot Hospital, and got the medal. His whole service was spent in multary employ, except for a short time in the Calcutta Mint, in 1869 70, the first few years in the Indian Navy, subsequently in the 5th, 18th, 8th and 21st Bombay Native Infantry, while for several years he was Staff Surgeon at Poon?

Surceon Liplitant (Office Horace Park Yeld), Bengal Medical Service, retired, died at Harrogate on 21st Iune 1913. He was boin on 11th September 1847, educated at Glasgow University, took the "Scottish double qualification" LRCP and LRCS, Edinbuigh, in 1870, and entered the IMS, as Surgeon on 31st March 1874. He became Surgeon Major on 18t March 1886, Surgeon Lt Colonel on 31st March 1894, and retired on 18th November 1894. He served in the Mythan Wai in 1879, with the Thal Chotiali and Vitakri Field Force, receiving the medal. His first ten years' service was passed in military employ, when he was for some time medical officer of the 18th Bengal Cavalty. In 1884 he joined the Mint, and served as Deputy Assay Master both in Calcutty and Bombay.

CAPTAIN HORACE HARVARD KIDDLE, of the RAMC, and formerly of the IMS, retried, receiving a gratuity, on 25th June 1913. He was born on 20th October 1877, took the MRCS and LRCP, London in 1902, and entered the IMS as Lieutenant on 1st September 1902, becoming Captain on 1st September 1905. On 18th December 1907 he exchange into the RAMC, Captain WHOdlum taking his place in the IMS This, we believe, was the first case on record of an exchange between the RAMC and the IMS, certainly the first toracentury past. Only four other exchanges have since taken place. Captain Kiddle went on temporary half pay on 2nd September 1911.

LIFUTENANT COLONFL JAMES CROFTS, Bengal Medical Service, retnied, died at Cork on 7th May 1913. He was born on 13th May 1854, educated at Queen's College, Cork, took the MB, MCh, and LM in the long defunct Queen's University of Heland in 1874, and entered the IMS as Surgeon on 31st March 1877, two places below his brother, now Surgeon General AM Crofts, CIF, who was just two years his junior in age. He became Surgeon Major on 31st March 1889, and Surgeon Lt Colonel on 31st March 1897, and retired on 15th July 1905. He served in the Afghan War of 1878—80, when he was present in the affair of Ali Khel, and received the medal. Most of his service was passed in medical posts under the Political Department.

Lieutenant Coionel Kanta Prosad, Bengul Medicul Service, lettred on 31d June 1913. He was boin on 17th May 1860 educated at Edinburgh University, where he took the MB, CM, in 1887, after gaining the Scottish triple qualifications in 1886, and entered the IMS as Surgeon on 31st March 1888, becoming Major on 31st March 1900, and Lieut Colonel on 31st March 1908. He served on the North East Frontier of India in the Manipur Expedition of 1891, receiving the medal with class, and in three campaigns on the North West Frontier, Isazu, 1892, the Malakand, 1897. 98, operations in Bajaun and in the Mohnund country, medal and class, and Thiah 1897. 98, class He had passed many examinations in vernacular languages, the Degree of Honour in Urdu, and qualified in Manipuri, Burmese, Kachin, Maiu, Shan, and Pushtu. For many years past he had been in civil employ in Burma, and since November 1911 on sick leave.

CAPTAIN HERBERT ERNEST JARDINE BATTY, IMS, died at Quetta on 25th May 1913. He was a son of Mi Justice Batty, ICS, late of the Bombay High Court, and was born on 14th October 1877, and educated in the school of the Royal College of Surgeons, Edinburgh, where he took the Scottsh triple qualifications, LRCS Ed, LRCP Ed, and LFPSG, in 1901. Entering the IMS as Lieutenant on 26th July 1902, he became Captain on 26th July 1905. For the last six years he had been medical officer of the 54th Sikhs. The Army List assigns him no was service,

COLONEL HERBERT ST OLARE CARRUTHERS, Madras Medical Service, 18tired on 30th June 1913. He was born on 18th April 1856, took the LRCS and LRCP at Edinburgh in 1878, and entered the IMS as Surgeon on 30th September 1878. He became Surgeon Major on 30th September 1890. Lieut Colonel on 30th September 1898, was placed on the selected list on 29th May 1906, and became Colonel on 30th June 1908. After serving for some time at Sikandarabad, he succeeded Colonel WG King as Inspector General of Civil Hospitals in Burma in 1910, but for the last eight months he had been on leave. He served in the Afghan War in 1879.80, receiving the medal

LIEUTENANT COLONEL HENRY ROBLRT WOOLBERT, Bengal Medical Service, 1etned on 30th June 1913 He was born on 21st December 1858, educated at University College, London, took the MR CS and the MB London in 1884, and the FR CS in 1885, and entered the IMS as Surgeon on 1st October 1885, pressing in first of his batch. He became Surgeon Major on 1st October 1897 Lieut Colonel on 1st October 1905, and was placed on the selected list on 1st October 1905, and was placed on the selected list on 1st April 1910. The Army List assigns him no war service Most of his service was spent in Native States under the Foreign Office, his last appointment being that of Civil Surgeon, Almir, and Agency Surgeon first class. He had been on furlough for fifteen months past. He receives one of the two extra compensation pensions allotted to Bengal for 1913 14

LIEUTENANT COLONEL JOHN BLAND JAMFSON, Bombay Medical Service, retried on 30th June 1913 He was born on 9th October 1864, educated at Edinburgh University, where he took the MB and CM in 1887, and entered the IMS as Surgeon Captain on 31st March 1890, becoming

Major on 31st March 1902, and Lieutenant Colonel on 31st Maich 1910. He served on the North West Frontier of India in the second Miranzai Campaign of 1891, receiving the medal and clasp and again in the Molimand Campaign in 1897 98, being mentioned in despatches, in G G O No 13 of 1897, and receiving the medal and clasp, and in Tirah in 1897 98, in the action of the Sampagha Pass, the operations at and around Dwator and the action of 24th November 1897, and in the operations in the Bara Valley from 7th to 14th December 1897, receiving another clasp. For the past ten years he had been in civil employment in Bombay, his last appointments having been those of Civil Surgeon, Ahmad angui, and Superintendent of Mahableshwai, but for the last two years he had been on furlough Major on 31st March 1902, and Lieutenant Colonel on 31st last two years he had been on furlough

THE following letter for the Chief of the Staff (No 3459,

dated 26th June, Simla), is republished for information — "I am directed to inform you that, as in the case of officers of other branches of the service, officers of the Royal Army Medical Corps and Lieutenants, Indian Medical Service, cannot be permitted to take the subheads of subject (d) for promotion separately, except in the case of an officer of the Royal Army Medical Corps who has passed in subhead (d) (ii) prior to 1st June 1912, but who had not completed his qualification for promotion by that date, and in the case of a Lieutenant of the Indian Medical Service who was compared on a sefter 98th January 1911 and has already missioned on or after 28th January 1911, and has already passed in (d) (ii)

There were several instances at the examination held in Maich last where applications were made on behalf of officers to be examined in one subherd only. These were accepted and the officers permitted to appear, but in future candidates must take up both (d) (ii) and (d) (iii) at one examination."

THIRD grade Civil Assistant Surgeon Vishwambhai Piabhakai Limaye, L.W. & S., in charge of the Main Dispensivy, Chanda, is appointed to officiate temporarily as Civil Surgeon, Chanda

ON relief by 3rd grade Civil Assistant Surgeon Viswam bhar Prabhakai Limaye, L.M. & S., Major J. C. S. Oaley, FRCS, MRCS, LRCP, DTM, IMS, Civil Surgeon, Chanda, is transferred to Amnaoti Orders Nos. 1385 to 1387 and No. 1389, dated the 26th June 1913, are hereby cancelled

MATOR V H ROBERTS, FRCS, 1 MS, Officiating Civil Surgoon, Seom, is transferred in the same capacity to Chanda.

The following appointments, posting and transfers are ordered in the Oral Medical Department, Burma —

Major N P O'G Lalor, IMS, on completion of the special duty in connection with malaria, to revert to his substantive appointment as Deputy Sanitary Commissioner, Burma

On relief by Major Lalor, Major G H Stewart, I u.s., Officiating Deputy Sanitary Commissioner, Burma, to be Civil Surgeon, Thayetmyo, in place of Captain W J Dunn,

Officiating Deputy Sanitary Commissioner, Burma, to be Civil Surgeon, Thayetmyo, in place of Captain W J Dunn, R A M C
On return from deputation to Abyssinia, Mr C Martin, I. R C P & S (Edin), to be Civil Surgeon, Minbu, in place of Mi H E Wells M B, C M (Edin), transferred
On relief by Mi Martin, Mr H E Wells, M B, C M (Edin), to be Civil Surgeon, Pegu, in place of 2nd class Military Assistant Surgeon D D Stewart, transferred
On relief by Mi Wells, 2nd class Military Assistant Surgeon D D Stewart to be Civil Surgeon, Myrtkyina, in place of 2nd class Military Assistant Surgeon E A Picachy
On return from leave of Maung Aung Tun, M B, Ch B (Edin), House Surgeon, General Hospital, Rangoon, Mi W D Jones, L M & S (Mad), L R C P & S (Edin), Officiating House Surgeon, General Hospital, Rangoon, to be Civil Surgeon, Kyaukse, in place of Senior Military Assistant Surgeon and Honorary Captain J F Curran, transferred
On relief by Mi Jones, Senior Military Assistant Surgeon and Honorary Captain J F Curran to be Civil Singeon, Kyaukpyu, in place of Senior Military Assistant Surgeon and Honorary Lieutenant E J Greson
Under the provisions of articles 260, 308 (b) and 233 of the Civil Service Regulations, privilege leave for three months combined with furlough for one year and nine months is granted to Major N P O'Gorman Lalor, I M S, with effect from the date on which he may avail himself of the privilege leave

Major G Y C HUNTER, IMS, Superintendent of the Buxar Central Jail, on leave, has been granted by His Majesty's Secretary of State for India a further extension of leave for three months

Major Hunter went on leave on 30th March 1911, and has aken extensions on medical certificate owing to continued ill health

CAPTAIN W J FRISER, WB, ChB, FROS, IMS, Officiating Civil Surgeon, Chundwarn, was deputed to undergo a course of instruction in Clinical Bacteriology and Technique at the Kasauli Institute

COLONEL R N CAMPBELL, CB, CIF, MB, IMS, In spector General of Civil Hospitals and Prisons and Saintray August 1913, combined leave for eight months, viz, privilege leave for three months and leave on private affairs for five months in continuation, under paragraph 226, Army Regulations, India, Volume II

tions, India, Volume II

This means that Colonel Neil Campbell retires from the service and in him one of the most popular men that have very served in the I M S. Colonel Campbell took his degrees at Edinburgh in 1876, entered the service on 1st October 1877, was promoted Colonel on 2nd April 1909 and will retire on 1st April next at the end of his leave. Col Campbell spent nearly all his Indian career in Assam, even his active service was in the Naga. Hills expedition of 1879 80 when he was mentioned in despatches, and given the medal and clasp. He spent most of his life in civil employ in Assam and for a short period in Bengal. He was made Inspector General of Civil Hospitals in Eastern Bengal on April 1909 and on the reconstitution of Bengal he remained as Administrative Medical Officer in Assam. He got the C. I. E. in June 1909 and the C. B. on June 1912. We wish him many happy years on his retirement. many happy years on his ictirement

THE post of Health Officer of Delhi is sanctioned as a new I M S, cadie appointment. The pay is that of a Deputy Sanitary Commissioner and the tenure is for 5 years.

THE Government of India has sanctioned the ciertion of the appointment of Agency Surgeon at Mohammerah, in the Persian Gulf, with pay of grade and a local allowance of Rs 200 per month It is healthy to see the impractical ble "Morley Doctrine" gradually disappearing

CIVIL ASSISTANT SURGEON TRISHITA NATH SINGH, attached to the sadr dispensary, Mainpuri, to held civil mediated charge of that district, in addition to his other duties, if nee Captain G. A. Jolly, I M.S., transferred.

CIVIL ASSISTANT SURGEON GAURI LAL, attached to t sadi dispensary, Etawah, to hold civil medical charge of the district, in addition to his other duties, as a tempora measure, vice Major W. E. McKechnie, 1 W. S., placed of the same of special duty

CAPTAIN H H BROOME, MB (Edin), has taken t Fellowship of the Royal College of Surgeons, England

COLONEL A O EVANS, I MS, is confirmed in the appoinment of Inspector General of Civil Hospitals, Burma, wit effect from the 30th June 1913, vice Colonel Carruthers ı etired

MAIOR F N WINDSOR, MB, IMS, Chemical Examiner, Bengal, and Professor of Chemistry in the Medical College, Calcutta, is granted combined leave with effect from the 1st May 1913, viz., privilege leave for two months and eight days, with study leave for seven months and twenty secul days, and furlough for one year, one month and twenty find days in continuation. The Home Department Notification No. 184, dated the 22nd April 1913, is hereby cancelled

CAPTAIN H C BUCKLEY, I MS, Officiating Civil Surgeon of Muttra, privilege leave for two months and twenty four days, from the 30th July 1913, or subsequent date.

DR RAM CHARAN, Civil Surgeon, Ballin, is placed on special duty at Naim Tal

CAPTAIN R S TOWNSLAD, I MS, officer on plague duty, Aligarli, to hold civil medical charge of Muttra, in addition to his other duties, vice Captain H C. Buckley, I.MS, granted leave

MAJOR W E McKechnie IMS, Civil Surgeon, Etawah, is placed on special duty at Bhim Til

MAJOR J FISHER, DSO, Indian Medical Service (Bengal) an Agency Surgeon of the 2nd Class, is granted privilege leave for one month, with effect from the 2nd June, 1913

CAPTAIN G A JOLLY, I WS, Officiating Civil Surgeon, from Mainpuri to Fatehgarh

PARAGRAPH 10 of the regulations regarding the grant of study leave to officers of the Indian Medical Service, as published in Army Department Notification No 867, dated the 6th September 1912, is reconstructed as follows—

10 For the course of study lodging allowance at the rate of 8s a day for a field officer, 6s for a Captain, and 4s for a Lieutenant, will be granted on the production of the certificates required by Rule 12 It is to be understood that, in order to qualify for the grant of Study Leave or for the receipt of Lodging Allowance, a definite course of study at a recognised institution, which will occupy the time of the officer for five or six days a week, must be pursued Lodging allowance will be admissible up to 14 days for any period of officer for five or six days a week, must be pursued Lodging allowance will be admissible up to 14 days for any period of vacation. A period during which an officer interrupts his course for his own convenience cannot be considered as

In the case of an officer returns from the service without returning to India after a period of study leave the lodging allowance will be forfeited. If the officer is under Civil Leave Rules the study leave will be converted into fur lough to the extent of the fullough standing to his ciedit at the date of letirement. Any balance of the period of study leave mentioned above which cannot be so converted will be excluded in reckoning service for pension.

The date of Colonel P Hehm's promotion to be Colonel, I M s , is greated as  $25 th\ March\ 1912$ 

His Excellency the Governor in Council is pleased to make His Excellency the Governor in Council is pleased to make the following appointments during the absence on deputation of Lieutenant Colonel T E Dyson, MB, CM (Edin), DFH (Bir), IMS, or pending further orders—Major H A F Knapton, IMS, to act as Sanitary Commissioner for the Government of Bombay Captain H S Hutchison, BSC (Glasgow), MB, IMS, to act as Deputy Sanitary Commissioner, Central Registration District. In addition to his own duties as a temporary

tion District, in addition to his own duties as a temporary measure

His Excellency the Governor in Council is pleased to appoint Captain J H Horton, DSO, MB, IMS, on return from leave, to be on general duty at the Sassoon Hospital, Poona, as a temporary measure, and thereafter to act as Civil Surgeon, Sukkur, vice Major C. R Bakhle, IMS, proceeding

THE services of Lieutenant Colonels W E Jennings, MD, CM (Edin), DPH (Dub), IMS, and T E Dyson, MB, CM (Edin), DPH (Bn), IMS, are placed temporarily at the disposal of the Government of India with effect from the 14th and 15th July 1913, respectively.

Major L J M Deas, I Ms. Agency Surgeon in Bho pawar, is appointed temporally to hold charge of the current duties of the office of the Political Agent in Bhopawai, in addition to his own duties, with effect from the 2nd June, 1913, and during the absence on leave of Lieutenant Colonel B E M Guidon, CIL, DSO, or until further orders

THE services of the undermentioned officers are replaced temporarily at the disposal of His Excellency the Commander in Chief in India with effect from the dates mentioned

1 Lieutenant Colonel W E Jennings, WD, 1 MS, with effect from the 14th July 1913
2 Lieutenant Colonel T E Dyson, WB, 1 MS, with effect from the 15th July 1913

The combined leave for eight months granted to Major R W Authony, MR, CM (Edin), FRCS (E), IMS, in Government Notification No 1585, dated the 26th February

THE following is the prize list of the list session for candidates at Royal Medical College, Milbank.

The Herbert Prize, for the highest aggregate of marks Lieutenant R. M. Porter, IM., 563 marks out of 700 Proa acc Lieutenant H. Bedingfield, RAMC, 558 marks. Parks & Memorial Prize, for the highest marks in Hygiene frection of H. Bedingfield, RAMC, 165 out of 200 Proa acc., Lieutenant R. M. Porter, IMS, 159

De Chaumont Prize, for Hygiene Lieutenant C. J. H. Little IAMC, 153 out of 200 Proa acc., Lieutenant F. C. Davidson RAMC, 155 out of 200 Proa acc., Lieutenant I. G. Biggam, RAMC, 151

Fayrer Memorial, for Pathology Lieutenant R R M Porter, I M s , 152 out of 200 Prov acc, Lieutenant A C Maciae, I M s , 161

First Montefiore Prize, for surgery Lieutenant E Calcert.

Second Montefiore Prize Lieutenant F C Davidson, RAMC, SO out of 100 Provace, Lieutenant A A M Davidson,

RAMC, 80 out of 100 Provace, Lieutenville A Am Davies, RAMC, 78
Ranald Martin Memorial for Tropical Medicine Lieutenant R R M Porter, IMS, 94 out of 100 Provace, Lieutenant H Bedingfield, RAMO, 92
Marshall Webb Prize, for Medical Administration Lieutenant L Dunbar, RAMC, 92 out of 100 Provace, Lieutenant H Bedingfield, RAMC, 88

Major C G Wisster, INS., of the Midias Medical College, was gianted two years' combined leave from on or after 10th July 1913

CAPTAIN R D WILCOCKS, I W.S., is due out from furlough on 9th October 1913

CAPTAIN W R J SCROGGIE, I WS, has got leave up to 28th May 1915

CAPTAIN W A JUSTICE, I MS, was granted three months' privilege leave from or after 25th July 1913

CAPTAIN A C INGRAM, I MS, was granted 20 months' combined furlough and study leave from 30th June 1912.

CAPTAIN M J QUIRKE, IMS, acts for Captain Justice, a Sanitary Commissioner, Madras

CAPTAIN J M SKINNER, I MS. has been appointed to act as 4th Physician, Madias Medical College

The combined leave on inedical certificate granted to Lieutenant Colonel J. R. Adie, I.V.S., in Punjab Government Notifications Nos 353, dated 27th March 1912, and 19, dated 3rd January 1913, is extended, under Articles 233 and 308(a) of the Civil Service Regulations, by a further period

CAPTAIN N M WILSON, I Ms, was granted leave from 1st June, and Captain H C Kentes, I M.s, from 31st May

CAPTAIN P. S. MILLS, IMS., Plague Medical Officer Hoshiarpur, is granted privilege leave for 1 month and 9 days under Articles 233, 242 and 260, Civil Service Regula tions combined with leave on private affairs for 5 months and 22 days under the Staff Corps Rules of 1886, with effect from the 3rd July 1913, or the subsequent date from which he may avail himself of it

LIEUTEVANT COLONEL K PRASAD, IMS (1etd.), has taken the M D degree at Edinburgh

CAPTAIN J J H NELSON, I M.S., has taken the M D. degree at Edinburgh

CAPTAIN A D STEWART, IMS, has taken the D. T M and H Diploma at Edinburgh

LIEUTENANT P F GOW, I MS, was appointed Specialist in Prevention of Disease, Allahabad Brigade, from 10th May

CAPTAIN A J V BETTS, M B (London), I M S, was granted furlough on medical certificate for eight weeks, with effect from the 19th May 1913

THE services of Captain W S McGilliviay, M D, I M S are placed temporarily at the disposal of the Government of Burma for employment on plague duty, with effect from the date on which he assumes charge of this duty

MAJOR W M ANDERSON, IMS, an Agency Surgeon of the 2nd Class, is posted as Residency Surgeon, Gwalioi, with effect from the 2nd July 1913

LIFUTENANT COLONFL P CARR WHITE, Indian Medical Solvice, an Agency Surgeon of the 2nd Class, on return from leave is posted as Agency Surgeon, Rotali and Jhalawar, with effect from the 1st July 1913

THE services of Lieutenant Colonel D M Dividson, M B I Ms, are replaced at the disposal of the Government of the Punjib, with effect from the 26th June 1913, on his leaving Delhi

CAPTAIN N M WILSON, I M S, was granted  $2\frac{1}{2}$  months' leave from 2nd June

MILITARY ASSISTANT SURCEON E F HOTTINGEL WAS granted 2 months leave from 4th August

LIPUTENANT COTONEL W R CLARKE, IMS, has been posted to Jullunder as Civil Surgeon

THE degree of LL D, hon causa, of St Andrews has been conferred upon Sn Charles Bedford, MD, IMS (retd)

MR I U NASIR, Civil Surgeon Jhang, has been granted 12 month's privilege leave from 16th August

MAIOR A G SARCENT, IMS, whose services have been placed at the disposal of the Government of Buima, is appointed, with effect from the 16th May 1913, before noon, to be Superintendent of the Lunatic Asylum, Rangoon, in place of Major W H Con, DSO, IMS, who has proceeded on

ON relief by Senior Military Assistant Surgeon and Honorary Captain J. F. Curran, Captain E. T. Hariis, I. M. S., Civil Surgeon, Toungoo, was appointed to be Civil Surgeon, Bassein, in place of Captain E. A. Walker, I. M. S.

MR W A REAPDON, LRCP & S (Edin), is appointed as a Civil Assistant Suigeon in Burma, on probation, with effect from the date on which he assumes charge of his duties

WE regret to learn that Major D. McCay, MPCP, IMS, Acting Professor of Materia Medica, Calcutta Medical College, has been seriously ill with appendicular abscess, and his place at the College has been taken by Major E. E. Waters, MPCP. Major Rait goes to Hooghly vice Major Waters.

THE services of Captain R S Kennedy, INS, are replaced at the disposal of the Government of India

MAIOR V H ROBERTS, FRCS, IMS, Civil Surgeon, Sconi is placed in visiting medical charge of the Chlindwara District, during the temporary absence on deputation of Captain W J Braser, MB, FRCS, IMS, at the Kasauli Institute

PRIVILEG leave for one month, under article 260 of the Civil Service Regulations, is granted to Captain J M A Macmillan MA, MB ChB, FRCS, LRCP, IMS, Civil Surgeon, Hoshangabud, with effect from the 18th July 1913 or the subsequent date on which he may avail himself of it

CAPTAIN A S M PEFBLES, IMS, Superintendent, Central Lunatic Asylum, Berhampore, is appointed to act, in addition to his own duties, as Civil Surgeon of Murshida bad, during the absence, on deputation, of Major C A Lane, I M S, or until further orders

MAJOR C A LANE, IMS, Civil Surgeon, Murshidabad is appointed, until further orders, to act as Civil Surgeon of Darjeeling, tice Major Gwyther, gone sick

MATOR H B FOSTER IMS, is, on return from leave, appointed to act as Police Surgeon, Calcutta, and Professor of Medical Jurisprudence Medical College, during the absence, on leave, of Vajor O St John Moses, IMS, or until further or ders

MAJOR W F HARVEY, MB, IMC, has succeeded Sn D Semple as Director of the Research Institute, Kasauli, and Captain F P Mackie, MD, FRCS, IMS, is appointed to the Bacteriological Dept permanently from 19th March 1913

CAPTAIN J CUNNINGHAM, I MS, is placed on special duty under the D G and is working at the problem of Dysentery in Eastern Ben al Jails, and is at present at Barisal

THE following promotions are made, subject to His Majesty's approval -

Majors to be Lieutenant Colonels, I M S Cecil Charles Stunit Baris, lay Gould, MB, John Mulvany,

John Mulvany,

Henry Burden, CIF, FRCS,

Charles Harford Bowle Evans, MR,

Hugh Bennett, MR, FRCS1,

Alfred Eugene Berry,

29th July 1913

Lieutenants to be Captains, I M 9 Phirozshah Byramji Bharucha I P ( 5 Richard William George Hingston, )

MB,
John Buley Tuch abenty MI,
Charles Newton Davis, MB,
Regund Charles Clifford, Clivo Newcomb, M B,
Henry Edward Shortt, M B,
Thomas Aithui Hughes, M B (provisionally subject to his passing the De partmental Examination to be held in March 1914),

30th July 1913

Latafat Husain Khan, Murray Puivis, Mi, Duncan McNab Taylor, MP,

The above promoted Lieutenant Colonels belong to the Netley batch of 29th July 1893, and have completed 20 years' service

The Lieutenants above promoted belong to the batch of 30th July 1910 and the names of thice of that batch do not appear in the above list

THI services of the undermentioned officers me placed temporarily at the disposal of the Government of Bombay

temporariy at the disposal of the Government of Bombay for civil employment —

Captain T G F Piterson, M P, I M S

Ciptain W H Boulth, I M S

On relief by Mr T W Quinn, LRCP, LRCS, LRFP & S, and L M, on return from privilege leave, 3rd grade Civil Assistant Surgeon Narayan Waman Modak, Officiating Civil Surgeon Druger is reported to the charge of the Surgeon, Drug, is reposted to the charge of the Mun Dispensity at Drug

#### Motice.

SCIENTIFIC Articles and Notes of interest to the Professior in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if requested

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#### BOOKS, REPORTS, &c, RECEIVED —

White & Jelliffe's Nervous Diseases, Vol I (Butterworth & Co) India D Walth's Disease of the Skin Baillifre, Tindall & Cox Mrs Usher's Book for Mothers and Nurses J & A Churchill Cunning's Aids to Surgery Baillitre, Tindall & Cox K P k Nair's Dysentery in Jals Madras, Ananda Press Alams & Cassidy's Acute Abdominal Diseases (12s 6d net) Baillitre Findall & Cox Reports of R C of Physicians, Edinburgh, Vol VII Oliver & Boyd Schmidt's The Modern Hospital W B Saunders Co Packaid's Diseases of Nose & Throat Lippineott Co Price 15s net Skillern's Diseases of Accessory Sinuses of the Aits Lippincott Co Price 15s

Price 183

Kirkpatricl's Medical Teaching T C D Hanna & Neale

De Querrain, Clinical Surgical Diagnosis Bale Son & Danielsson

Price 208

Price 258
Sir J Sawyer's Coprostasis Birmingham (Ormst Brothers)
Murphy's Surgical Clinics W B Saunders Co
Wrench's The Healthy Marriage J & A Churchill
Lister & Chavasso's Advice to a Mother J & A Churchill
Gerrard's Hygienic Labour in the fropics Singapore
Report of Australian Inst of Tropical Medicine, Sydney Robertson

Bernstein Applied Pathology H Fronde

#### LETTERS, COMMUNICATIONS, &c, RECEIVED FROM .-

Cart Proctor, IMS Scrampore Major Horton, IMS, kathiawar, Lt Col Lane, IMS, Nagpur, Jr Asat Surgn A D Gupta, Dacca Major Gidney, IMS, Kohima, Lt Col B Scton IMS, Simla, Capt Sheppard, IMS Bombay Major Southern IMS Simla, Capt F I Shother Smith, IMS, Allahabad, Capt C H Smith, Chitral, Dr. J G S Row, Negri Sembilan Lt Col Thomson, IMS, Poona

#### Original Articles.

#### A NOTE ON SOME USES OF A MODIFIED PURIN FREE DIET.

Bi A HOOTON,

Wijor, IWs,

Agency Surgeon, Kathiawar

#### PRELIMINARY CONSIDERATIONS

This subject receives so little attention in the general text-books that it will perhaps be advisable, to begin with, to review briefly some of the chemical and physiological considerations on which it is based

According to Walker Hall (1) 'pum' is a term which was first applied by Fischer to a nucleus C N and all bodies constructed upon such a base may be included under this name The purin bodies of ordinary occurrence are hypoxanthin, xanthin uric acid guanin, adenin, caffein, thein and theobiomin Hypoxanthin and xanthin occur in muscle extracts, adenin is a decomposition product of thymus and guanin of pancieas, while thein, caffein and theobiomin iepresent, of course, tea, coffee and cocoa also occurs in various vegetable substances, notably the pulses, mushrooms and asparagus The animal purins may exist either in a free state or combined with albumin in the form of nucleic acid, and the daily wear and tear of the body leads to the production of a varying quantity under different conditions, the purins so produced being known as endogenous, while those taken in with the food are spoken of as exogenous The production of endogenous purms may be influenced to a certain extent in various ways, for instance it is increased greatly by muscular exercise, and also in pyrevia and leukæmia The evogenous purins which amount to about half the total quantity got rid of daily, may be controlled almost completely by dieting

It appears (2) that feeding on unc acid itself causes no increased output of unc acid in the urme, but only of urea the uric acid absorbed being converted into uren by the liver and guanin, hypoxanthin and xanthin, ingested with the food are excreted partly as urea, partly as unc acid, and partly as less oxidised purin bodies

Rendle Short argues that in gout there are probably two main factors at work, that the tissues are apparently more vulnerable to the action of une acid than they should be and that, also, the kidneys are not sufficiently permeable to the A third factor might be the mactivity of the liver in the conversion of mic acid into Haig (3) points out that an excess of unc acid in the urine corresponds with an excess in the blood which is associated with high blood | meat and tea,

pressure, and he divides this 'unc acid group' of diseases into two main classes, the local affections, corresponding with a local deposit of urates, a diminution of uric acid in the blood, and consequent low blood-pressure, and the general circulatory affections, which are, he says, associated with the opposite conditions The former would include the local manifestations of gout and theumatism, the latter headache, vertigo, mental depression, epilepsy and various other conditions which he attributes to the circulatory effects of unc acid poisoning Though the question of the causation of gout and i heumatism occupies a debatable ground that may be fairly abandoned, at the present stage, to the experts. there appears to be a general consensus of opinion that if the direct cause is not actually unc acid. it is at all events something which is associated with uric acid, and even the most stienuous opponents of the puin-free diet theory would probably hesitate before prescribing meat extracts in a case of acute rheumatism certain limit, therefore, as regards practical considerations of treatment, there is not after all so very much at issue between the rival camps and when we come to empirical observations, there are certain facts which are quite mcontrovertible There are undoubtedly, for example, people who can turn then sick headaches, neuralgias and other symptoms, 'on and off like a tap as one observer has remarked, by increasing or diminishing their intake of purins and some of the effects of an over-dosage of puin bodies are seen very well in the case of the excessive consumption of tea It is no exaggenation to say that tea, as consumed by the Lancashne mill guls, for instance, and by many women of the upper and middle classes also, is a diug habit comparable to that of opium, the various hypnotics and alcohol, and it is unnecessary to particularize the serious nervous symptoms which accompany its abuse

The fact, also, that the kidneys exist largely to get 11d of a group of substances identical with some of those under discussion may reasonably be regarded as a danger signal in the case of foods or drinks containing such bodies in high proportion, and in this connection the quoted fact that it is difficult to distinguish by chemical analysis between beef-tea and unine may be recalled Finally, the case of New Zealand may be cited—a country which, favoured climatically as it is should not, one would think, be notable for theumatic affections, but one of the outstanding features of which is the great bathing establishment maintained at Government expense in the thermal region for their treatment, and apparently very largely patronized, while, on the other hand, the Dominion, together with Australia, holds the record for its consumption of

#### SOME ILLUSTRATIVE CASES

According to Haigs views a very long list of diseases are traceable to the action of uric acid, and therefore best treated by withholding puim bodies in the food Amongst these he places dyspepsia, migraine, neurasthenia cuihosis of the liver, Bright's disease and, in the precipitation group, gout rheumatism, bionchitis colitis, neuritis, appendicitis, and some other local inflammations Biyce (4) in his recent book on diet gives an account of his experience of the treatment in headache, epilepsy, asthma, nemasthema and some other conditions He expresses the opinion that the great majority of headaches in women are due to caffein (? thein) poisoning He found the purin-free diet remarkably successful in dealing with them, and also considers that it offers the best chance of a cure in epilepsy though the improvement in some cases of that disease, as in his experience of the treatment in asthma also, has been only temporary rasthenia, on the other hand, he has not found it My own cases may be grouped satisfactory under the following heads --

(a) Migraine—It is generally admitted, by most authorities, that no one cause can account for all cases of this very troublesome affection For instance, I know of one in a medical man which was most persistent, and resisted all treatment until the sufferer happened to read an account of 'sugar headache' which appeared in one of the medical journals, when a curtailment of sugar, of which he had been accustomed to take a great deal, resulted in an immediate and permanent And it is well known that errors of refraction account for a large proportion of the cases A considerable number however, remain, which are not amenable to any ordinary treatment and in some of these the employment of a purin-free diet has a quite dramatic action A very marked example was that of a Brahmin who had suffered regularly every 3 weeks or so for the last 15 years, and consulted numerous physicians and tried all the ordinary drugs without any permanent effect The only purin article in his diet was dhal, and on excluding this and making up the consequent deficiency in proteid with curds, and milk in various other forms he was immediately relieved, the cure being permanent so long as he continued on those lines, while any renewed indulgence in the offending constituent brought on a relapse

(b) Neuralgia —Some cases of neuralgia are just as striking in their response to a purin-free diet. I know of one in which the patient had suffered for years from periodic attacks affecting the right side of the neck and right arm, and of such severity as to deprive him of much sleep and almost incapacitate him for work. The affection reached a climax in an attack of some 2 months duration, which reduced him to such straits that he was willing to undergo the inconveniences of a

strictly purin-free diet for some time, partial relief followed almost at once, and in 4 days the pain had quite disappeared, though for some months numbres and a certain amount of loss of power were noticeable. Here, again, a return to a liberal meat diet infallibly brought on a relapse in a few days.

(c) The third subdivision includes a class of case which must be familiar to everyone practising in the tropics, the plethoric type of individual, of middle age or beyond who may or may not take too little exercise but is usually somewhat noticeable for his performances at table The symptoms, in this connection, are often somewhat vague, and of varied character, but the condition is obviously one of general nervous irritability patient suffers perhaps from ver' 1 in the ears, or he complains of spots before the eyes, with muscular twitchings, sometimes of the eyelids but also often elsewhere, or he suffers from insomnia, which may be associated with more or less marked attacks of asthma several cases of this type in mind, who were immediately relieved of what had been to them very alarming symptoms by stopping soup, tea and coffee, and restricting meat to one meal a In the cold weather, for example, when leading an active district life, and riding and shooting frequently, such people can often revert to the flesh-pots with more or less impunity, but on returning to a sedentary life they usually find it necessary to restrict their diet again

(d) Various chronic inhumatic and gouty affections. For example, a man of middle age who suffered from periodical attacks of sub-acute inflammation in a knee-joint, formerly the seat of acute rheumatic synovitis, and another some of whose inter-phalangeal joints became occasionally red, swollen, and tender owing to a chronic gouty affection. Both these improved rapidly under the restriction of purins

(e) Genrto-wrany mutability—In these cases no doubt the comparative alkalimity of the urine which accompanies a restriction of meat in the food may often have something to say to the satisfactory result which sometimes follows a more or less purin-free diet, apart from the elimination I may quote the following 2 cases one, a woman of middle age, whose life was a misery owing to a call to micturate every half hour or so, the other, a boy of 16 who was admitted to hospital for a very similar, condi-In neither could any organic disease be discovered, and both responded in a few days The boy was to a modified purin-free diet under observation for some months afterwards and stated that any return to a full meat diet almost at once brought on his old symptoms Other forms of genito-urmary irritability, as a rule only accentuated by drugs, are also amenable to this diet

(f) Obstinate dyspepsia, of a type which is often associated with constipation, sometimes yields to a diet on these lines after everything else has failed. No doubt partly owing to the reduction of the number of meals and increase of the intervals between them, and the restriction of fluid with the large meal at mid-day. It is certain that soup and tea often interfere seriously with digestion (5)

(g) Exophthalmic goitie—The only case which I have had an opportunity of submitting to this treatment did better on it than under ordinary remedies alone, but the fact that she was undergoing a rest cure and taking aisenic at the same time has to be borne in mind, and it is perhaps not fair to asciibe the improvement to diet only. The diet appears to me, however, to be specially suited to these cases, and I propose to employ it again if occasion offers

#### PRACTICAL DETAILS OF EMPLOYMENT

The adoption of a rigid purin-free diet, as recommended by Haig in its complete form, is not an easy thing There are, no doubt, cases in which, to obtain the full effect, the complete form is necessary, but very few people in ordinary cucumstances are willing to submit to it unless they are driven almost to despan by acute pain or incapacity In an English town, for example, it almost necessarily entails patronising the vegetarian restaurants, places characterized often equally by grotesque faddism and bad It has also to be remarked that many even of the ordinary vegetarian dishes are by no means purin-free, and that it is sometimes difficult to recognise those that are not modified diet on the other hand, is a much more simple affair to undertake, and may be arranged without any necessity of social ostracism

The principal foods of high purin content are ment of various kinds, and its derivatives, pulses (including peas, beans and lentils), tea, coffee and cocon, asparagus and mushrooms, oatmeal and cajon nuts As regards eggs, the authorities Walker Hall states explicitly that they contain no free purin or purin-yielding body, but Haig only allows the use of the albumen, rejecting the yolk This is an important point, concerning as it does one of the most useful substitutes for meat, and personally, judging from chinical experience eggs in their entirety appear to me to do no harm As regards flesh foods there is a considerable difference in the analysis of various forms Walker Hall's figures show cod containing 4 07 grains per lb of purins ne against 8 15 for salmon and mutton 6 75 as against 14 45 for beefsteak Chicken is given as 906, and turkey as 882, sweethead (thymns) 70 43 liver 19 26, beans 4 16 (by other authorities the purin content of some of

the pulses is put much higher) and oatmeal 3 45. A cup of coffee contains 17 grains, Ceylon tea 121 grains Indian tea 105 grains, China tea 0 75 grains Malt liquors vary from 1 35 grains per pint for porter to 109 for lager beer, and wines show no trace From a consideration of the puring articles of diet it is at once apparent that, as regards utility, they fall into 2 classes, viz, those which combine a high pulin content with a high nutritional value and those that do The latter, fortunately, comprise some of not the most (from the present point of view) injurious items, and there is a considerable and growing mass of opinion that these substances are to be regarded as harmful luxures, and that while a certain proportion of individuals may be more or less immune to their action the majority of us, sick or well, would better without them This is the view which I personally incline, and I am opinion that soup and meat extracts, tea, coffee and cocoa, sweetbread, kidneys and other glandular organs, and perhaps mushrooms and asparagus, might very well be excluded from the This, however, is not likely to happen until the views of not only the public but also the medical profession have changed considerably, and the question is one which need not concern The first thing in modifying an individual's diet in this direction is to see that the loss of nutritional value entailed by the exclusion of purm items is made up by some equally nourishing substitute The standard of protein requirements laid down by Haig is somewhere between that advocated by Chittenden and the excessive scale of the older authorities, and will probably be generally admitted as sound It is calculated by multiplying the body weight in pounds by 9, the result being grains of proteid required each This is assumed to evolude any excess of adipose tissue, and a reduction has to be made for stout people Worked out for a man of 133 lbs the requirements would thus be about 1,200 grains, an amount which would be contained, on a completely purin-free diet, in the following scheme, which is given merely as an instance of the actual quantities implied

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10		bread		544	grains
_ 3	"	cheese		420	granna
10	"	milk	•		"
13		"vegetables and	· .	131	33
	"	regetables and p	uuit	104	

It is, however, quite certain, that there are many people, who, on ordinary work, are unable to eat with comfort or assimilate this quantity of nourishment, in either this or a mixed flesh form, and considerable allowance has to be made for the personal equation

In adopting a modified diet on these lines then, a beginning should be made by cutting off or restricting all the most objectionable articles with no corresponding nutritional value. Soup, meat

extracts, glandular meats ordinary coffee, Indian and Ceylon tea should be stopped altogether, weak China tea being allowed to a limited extent, if the loss of tea is much felt, and caffein free coffee (6). ('Lifehelt Coffee, obtainable from the L C Coffee Co Ld 71 Eastcheap, London, E C) taking the place of the ordinary berries This coffee may be obtained in the berry, is quite indistinguishable from the other when fieshly roasted as required, and has been authoritatively shown to contain hardly any caffein In view of their somewhat uncertain but always high purin content the pulses should also be excluded In some cases, for instance certain examples of migraine, nothing further is required, and the patient is subject to very little inconvenience In others it may be necessary to go a step further, and cut flesh foods (including fish and fowl) down to one light meal Then an arrangement of the following kind is often satisfactory, and entails not much dislocation of most people's ordinary habits -

Early morning—a substantial chota hazir of bread or toast and butter, and milk flavoured with coffee

Noon—the heavy meal of the day, consisting of, eq., eggs in some form preferably omelet, a vegetable curry or vegetables in some other form, rice and milk, or porridge made with coarse whole meal flour, and milk, or a milk pudding or macaron and cheese, bread and a couple of ounces of Gruyere cheese, or some kind of fresh household cheese or curds, and fresh or dried fruits and nuts, if the latter do not disagree

Evening—a light fish and meat meal with green vegetables, followed or not by cheese sweets or puddings or potatoes By ringing the changes on these and similar dishes a quite And a little pleasant dietary can be evolved light wine or spirit or soda at dinner is also admissible. There are several points which call for notice and modifying an ordinary diet in this In the first place, the mid-day meal in order to contain enough nourishment is somewhat bulky, and a considerable period should be allowed both before and after it to encourage appetite and give time for digestion Six hours interval in each case is not too much for most people, and if afternoon tea is drunk no solid food should be taken with it Then it is as a rule advisable to drink very little actually with a heavy meal of this description, any considerable quantity of fluid should be reserved till 2 or 3 And it is also necessary to bear in hours later mind that the class of patient under discussion presumably digests meats with difficulty, and for that reason the dinner should be light and large quantities of starchy substances and sugar, which interfere with the gastric digestion of proteids, should not be taken then As a rule potatoes can be taken at the mid-day meal with advantage, but some people, in adopting a diet largely vegetarian

are troubled with phosphaturia, and it has to be remembered that potatoes in large quantities may be responsible for this symptom.

#### COYCLI DING REMARKS

Haig, in his smaller work on unic acid, observes that the medical profession, as a whole, is not convinced of the soundness of his principles, and he even goes on to say that so high have prejudice and party feeling run in the matter that those physicians who themselves practise the 'unc-acid-free' diet are possibly judicious in evercising reticence on the matter with the greater number of their patients. Outside the recognized dietailes for diabetes and one or two other well defined diseases, there certainly does appear to be considerable amount of prejudice. both on the part of the public and the profession, against theories which involve any considerable interference with popular habits of diet, and in view of the extraordinarily diverse and sometimes obviously grotesque systems which are from time to time brought forward, this is easy to understand, but I cannot but think that the purinfree system has suffered from a somewhat immoderate advocacy, and from a perhaps equally unjustifiable opposition It is, in particular, unfortunate-if one admits its uses-that the system should have incurred the opposition of Luff, whose works are so largely read, especially But there are signs in connection with gout that informed opinion is gradually changing, and in this respect a reference may be made to three recently published works which all contain testimony to the value of this diet, viz, the New Physiology, by A Rendle Short, the anticle on Diet by Spriggs in Latham and English's 'System of Treatment,' and 'Modern Theories of The latter in particular—whose Diet' by Bryce book contains by the way, a dispassionate criticism of most of the current systems-may be 'With this experience to guide me he says 'I am now in the habit, in all chronic cases of disease in which the ordinary methods of treatment have yielded no good result, of cutting off all xanthin-containing and purin-containing articles of diet, which are at the same time nonnutritious or practically so, and this includes tea, coffee, meat, soups, beef-teas and gravies undoubtedly throw a great deal of extra work upon the organs of excretion—and are liable to form toxins

It is the impression that this method of treatment is very little employed, together with the conviction that both in health and disease the principles on which it is based are well worth bearing in mind particularly in warm climates that has prompted me to make the present communication. The purin-free diet, complete or modified, is not, as some one has elsewhere observed, a sovereign panacea, but it is a most

useful part of our therapeutic equipment, and it might, I would urge, be employed very much more frequently than it is at present

#### REFERENCES

(1) The Purin Bodies of Food Stuffs, by I Walker Hall (Sheratt and Manchester)
(2) The New Physiology in Surgical and General Practice, by A Rendle Short (John Wright and Sons, Bristol)
(3) Uric Acid An Epitome of the Subject, by Alexander Haig (I & A Churchill, London)
(4) Modern Theories of Diet, by Alexander Bryce (E Arnold London)

An nold London)
(5) Collected Contributions on Digestion and Diet, by Sir William Roberts (Smith Elder and Co., London)
Though somewhat out of date this work still well repays perusal, in connection with questions of diet in general

(6) Caffein free Coffee

I know of two individuals, both medical men, who are unable to take ordinary coffee, owing to its causing headache in the one case and in the other insomnia. Both find they can take caffein free coffee with impunity

#### RELAPSING FEVER IN CHITRAL WITH AN ACCOUNT OF SUCCESSFUL ANIMAL INOCULATIONS

BY C H SMITH, MD, FRCS,

CAPT, 1 MS,

AND

G F GRAHAM, MD,

CAPT, INS

Several papers have appeared in the recent literature on Indian relapsing fever in which an effort has been made to differentiate distinct clinical types of this disease (Lieut H Stott, IMS, I M G, August 1911, Major G Browse, INS, I M G, October 1912, Capt A M Jukes, IMS, I M, G, June 1913) number of cases which occurred in Chitral in the late winter and spring of 1913, seem to illustrate two types of this fever

The outbreak, which was of epidemic form, first appeared among some remote Kafir villages on the Afghan frontier situated at some seven thousand feet elevation From the account of the villagers this appeared to be a disease which was previously unknown among them were no deaths and recovery in two or three months was the rule, neither was there any history of sequelie. None of these cases came to hospital for treatment, but slides of their blood showed very numerous spirochetes of a small The following is a short account of eleven cases which occurred in the Chitral garison -

These cases are divided into two groups (1) Two cases which were injected in the abovementioned villages at the end of February The remainder of the cases which were injected at the end of April in the Chitral Valley, about ten miles from Drosh, at an elevation of four thousand five hundred feet

These two cases occurred in Punjabis who had accompanied an officer to the Kafir villages on a shooting trip The disease commenced suddenly about ten days after return to Drosh Chart. Nos 1 and 2 show the type of fever

will be noted that in both cases there was a continuous temperature for several days, only one The general appearance case had a relapse both resembled enteric fever which was heightened in one of the cases by the occurrence There was no enlargement of the of epistaxis spleen or other physical signs or Both cases were of short duration and were discharged from hospital in three weeks and have had no relapses since

Blood examination howed the presence of numerous spirochætes of rather a small type, six to twelve spirochætes were observed in each field An actual leucocyte count was of the microscope not made, but judging from the slides anything in the nature of a leucocytosis was not marked

The other nine cases occurred among the Guikhas and the Pathan Sappers of the Chitral garrison and show a distinct contrast to the two Five of these cases were cases just described infected in the same place, in the same week, within a day or two of each other Charts Nos 3 This values and 4 illustrate the type of fever. greatly from the two cases first described, the disease being much more prolonged, lasting some four or five weeks, the number of relapses 18 also considerable and the intervals between them most nregular, each relapse is also of short duiation

Table showing the number of relapses in each of the nine cases

Number of cases	1	2	3	4	5	6	7	8	9	
Number of relapses	2	3	0	1	0	1	1	0	1	Total 9

The incubation period, as far as could be made out, appeared to be ten or eleven days.

Compared with the first two cases the general condition was much less grave, the patients feeling quite well as soon as the temperature dropped to normal. In a few of the more prolonged cases, towards the end of the disease, there was some anæmia and general debility All these patients complained of severe general body pains during the febrile paioxysms, in one case requiring morphia One patient had continuous pain in the upper part of the sternum which only disappeared one week after the last relapse In only one case was there enlargement of the spleen This man had a spleen projecting two inches below the costal margin, but he gave a definite malarial history and stated that his spleen had been enlarged for some considerable time before the onset of the fever other symptoms or physical signs were noted in these nine cases

Blood examination showed in every case the presence of spirochætes, but these were very few and far between and often difficult to find the blood slides contrasting markedly with those of the first two cases with their very numerous spinochetes. These spinochetes appeared to be larger than those found in the first two cases, the end to end form, and parasites apparently undergoing longitudinal fission were noted. In none of these slides was there an apparent leucocytosis and in one case a total count showed only 6,000 leucocytes per CM, differential counts showed a small relative decrease of the polymorphonuclears and a corresponding increase of the large mononuclears.

These nine cases just described seem to resemble, in many points, those described in Quetta by Major G V Browse 1 u.s., in the I M G, of October 1912

Animal inoculation experiments—The animals used were young rats of the genus Mus Rattus—These animals were kept under observation for some days before the experiments were commenced

Experiment 1—Three rats received a subcutaneous inoculation of 1 c c of blood taken from the median basilic vein of one of the second group of cases during a relapse (see Chart No 4). No citiate was added to the blood, it was simply taken from the vein and quickly before it had time to clot, injected into three rats. A daily examination, by means of films, was made of the rats' blood. On the third day after inoculation spirochætes appeared in the blood of all three rats, persisted for two or three days and then disappeared and were not found again.

The following table exemplifies these points —

Throughout these experiments the four rats appeared to be perfectly fit. The spirochetes found in their blood resembled those in the blood of the case from which the blood was taken both as regards numbers and morphological characters.

Post-mortem examination of these rats, both during the period when spinochætes were present and after they had disappeared from the blood, showed no obvious changes in the different organs

Judging by the recent literature of Indian relapsing fever inoculation experiments with various animals seem to have proved unsuccessful. The success in these cases may have been due to the following points—

- I Young 1ats were used
- 2 Species of rats used was favourable
- 3 No citiate of other chemical was added to the blood used in inoculation

#### DELAYED CHLOROFORM POISONING

BY D MUNRO,
NAJOR, IMS,
AND

A DENHAM WHITE, CAPT, IMS,

Resident Surgeons, Presidency General Hospital, Calculta

WE consider the following note to be of interest in shewing how a successful operative procedure may be followed by a result fatal to the patient and difficult for the Surgeon to anticipate, death being due to a toxic after-action of the anæsthetic on certain organs of the body. Many such

Date 30 5 13	31 5 13	1 6 13	2 6 13	3 6 13	4 6 13	5 6 13	6613	7 6 13
Rat No 1 Rat No 2 Rat No 3 Rat No 3	3 1		Spiloch wtes plesent Spilochætes present		Spirochetes present Rat No 3 killed used for experin	present on 3rd June 1913	and its	blood

Experiment  $2 - \frac{1}{2}$  c c of spinochæte containing blood was obtained from the heart of rat No 3 of experiment 1, and quickly, before it clotted, injected into the subcutaneous tissues of a fourth rat. On the third day after inoculation spinochætes appeared in the blood of this rat and persisted for three days

cases are already recorded, we add to the record, not because we have any fresh light to throw on the pathology of the condition, but in order to draw attention to it again in the hope that others who have met with such cases in their practice may be able to add something to the present states of our knowledge. Is it possible to be

#### TABLE

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Date	3 6 13	4 6 13 '	5613	6 6 13,	7 6 13	8 6 13
Rat No 4	Inoculated with ½ cc of blood from Rat No 3			Spirochætes pre sent	Spirochætes pre gent	Spirochætes pre sent

# RELAPSING FEVER IN CHITRAL WITH AN ACCOUNT OF SUCCESSFUL ANIMAL INOCULATIONS

BY CAPT C H SMITH, WD, FRCS, IMS, AND CAPT G F, GRAHAM, MD, IMS

CHART I

# CHART II

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-RELAPSING FEVER IN CHITRAL WITH AN ACCOUNT OF SUCCESSFUL ANIMAL INOCULATIONS
BY CAPT C H SMITH, ND, FRCS, INS, AND CAPT. G F GRAHAM, ND, INS

CHART III

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warned beforehand that in a case selected for an operation, there is danger of delayed chloroform poisoning? That is the question of practical importance, and they are not wanting some signs which indicate the kind of faulty metabolism in the patient which is to make the administration of chloroform a dangerous procedure. Those points we propose to discuss in the light of two cases which have occurred in our practice during the last five months.

Case I -- European female, age 23, who had been suffering from symptoms of gastric ulcer for the past five years, only temporarily relieved On admission she was by medical treatment found to be a poorly nourished young woman She came in desirous of operation, having been advised to that effect by her usual medical atten-An opinion with which we concurred after dant a week's observation and medical treatment Accordingly her abdomen was opened under chloroform given by the open method, a simple pyloric ulcei was found and a posterior gastrojejunostomy performed The operation was not difficult and there was no undue delay quite well until about 8 PM that night, when she vomited about a pint of dark blood the next 24 hours she continued to vomit dark brown fluid containing coffee ground sediment The vomiting occurred at frequent intervals Her general condition was good, the abdomen was soft, the pulse varying between 90 and 100, temperature below 100°F Mentally she was quite bright On the 31d day the condition was much the same but the patient was not so bright and the vomiting continued Rectal feeds were retained and the bowels acted with an On the 4th day a low delinium set in enema with intervals of complete consciousness and there was marked restlessness-vomiting still continued but was more bilious in character temperature was still only slightly raised, but the pulse rate was rising and the abdomen was still soft

Delirium passed into coma and she died on the 5th day. During the last two days a peculiar smell was noticed in her breath since believed by the one of us to whom the case belonged (DM) to be acetone. It is unfortunate that before operation the urine was only subjected to the usual tests for albumin and sugar and after the operation was never tested at all. Death was thought to be due to exhaustion and vomiting due to the establishment of a vicious circle.

Post-mortem —A partial examination of the abdominal organs was all that could be obtained. The wound was healthy and there had been no leakage from the anastamosis which was sound and lightly healed—also patent. The operation in fact had been quite successful.

The liver, which had been noticed at the time of operation to be quite healthy appeared like the

liver of an acute yellow atrophy The kidneys shewed advanced fatty degeneration

Case II -A female child, aged 13, of European parentage, admitted with an attack of appendicitis of three days' duration She was an excessively fat child and unusually well developed The adipose deposit was not so extreme as it had been when the one of us to whom the case belonged (A D W) The condition then saw her first a year ago might be described as phenomenal She was in the habit of eating sweets all day and had an unusually large appetite Her weight was about 11 stone Careful physical examination showed no other abnormality, and the urine shewed no abnormality when subjected to the usual routine Operation was advised, and performed on the following day The usual routine of preoperative procedure was followed and in addition a hypodermic injection of morphia sulph. 1-12, Atropine gis 1-300 and hyoscine gis 1-300 was given 20 minutes before administering the anæsthetic, chloroform was used by the open method, and was well taken

Despite the piesence of a layer of abdominal fat some  $1\frac{1}{2}$  inches thick, there was but little difficulty in removing the appendix, and there were no adhesions

The organ was red, and on opening up its lumen, it was found full of blood from small punctate hæmorrhages in the mucous membrane The omentum was unusually voluminous, and full of fat deposit The operation was well stood and lasted about half an hour An hour after returning to bed, the patient was quite bright and asking for food Some four hours later she vomited about a pint of daik grumous fluid resembling coffee-grounds The pulse was 120 per minute—temperature 102°F, general condition good and patient felt well lavage was carried out by giving a pint of sod bicarb solution to diink, which was vomited This was followed by 10 minims of adrenalin chlorid solution 1-1,000 given every hour for four doses Coffee-ground vomiting in small quantities, however, continued during the day and the patient passed a restless night though the temperature fell to normal. On the following day 24 hours after operation, there was a distinct interio tinge of the skin-the pulse was rapid 110-112 and vomiting continued at intervals, the fluid vomited being always of the same nature Some pain was complained of in the epigastrium The abdomen was soft, the wound satisfactory, and the patient bright and complaining of hunger All fluid nourishment, however, was rejected as soon as given temperature rose to 100 5°F in the evening and she passed another restless night with constant romiting

On the following morning, 48 hours after operation the state of affairs remained much the

She was still vomiting, but the vomit was now more bilious with a slight admixture of coffee-grounds There was distinct icterus All attempts at feeding were futile The temperature was normal but the pulse was very rapid and the patient restless and weaker About midday she became delirious, the delinium becoming rapidly acute till she was wildly delirious and screaming Herom grs 1-24 failed No urine had been passed for 12 to quiet her hours There was no smell of acetone noticed in the breath

She rapidly became worse, and passed into a comatose condition which ended in deaths 64 hours after operation

Unfortunately an autopsy was not allowed

Commentary — That the symptoms in these cases were due to a profound intoxication cannot be doubted and everything points to chloroform as the intoxicating agent for the clinical picture closely corresponds to the recorded cases, viz (1) uncontrolled vomiting of coffee-grounds or altered blood, (2) icterus (not present in case I). (3) delirium, rapid pulse and coma, (4) onset after the primary recovery from anæsthesia sence of acetone in the urine was not ascertained in either case, in case I because the condition was unsuspected, in case II on account of suppression The odour of acetone in the breath was noted (but only in retrospect) in case I Unnoted in The anatomical changes found postmortem in cases of delayed chloroform poisoning are already well-known They consist of fatty degeneration of the muscles, especially the heart muscle, of the kidneys, the stomach and mucous membrane generally, fatty infiltration of the liver, and the presence of pigment due to distinction of red blood corpuscles In case I only was a partial post-montem obtainable, but so far as the examination went, the pathological changes characteristic of this condition were found

What then are the factors which rendered these individuals more liable than others to chloroform poisoning?

Before answering this question in respect of our two above quoted cases, we must first briefly discuss the present state of knowledge concerning the causation of delayed chloroform poisoning as a pathological entity, a subject on which a great deal of work has been done

Stiles and McDonald (1) consider the fatty degenerations to be the result of the property of chloroform as a protoplasmic poison, they find a similarity between delayed chloroform poisoning and other auto-intoxication, and have observed an increase of acetone in the urine which they regard as derived from the breaking up of the fat in the degenerated fatty tissues. That the protoplasm in the nervous system and in the blood, is most gravely affected is explained by the fact that the

largest amount of chloroform is found combined in those organs which contain the greatest proportion of constituents soluble in chloroform ie, the nervous system and ied blood corpuscles lecithin and cholesterin being the fixing agents

They thus explain the selective toxic action of chloroform on the tissues, but it still remains unexplained why the protoplasm of some people is more vulnerable to the toxic action of chloroform than that of others There must either be some other factor at work in the tissues of the chloroform poisoned victims tending to make their protoplasm more vulnerable to chloroform or it must be that the toxic action of the chloroform itself renders the tissues more vulnerable to some other poison circulating in the blood It seems now to be probable that the latter is the case, and that the factor has been found in the condition known as acidosis, the probability being, not that the acidosis lenders the tissues more vulnerable to chloroform, so much as that the chloroform increases the vulnerability of the tissues to an acid intoxication It seems to us possible, however, that both toxins aid each other and that act like a vicious circle in producing the final result, and that the victims were not only individuals predisposed to acidosis, but also individuals specially susceptible to the toxic action of chloroform

In the condition known as acidosis, first diacetic and beta-oxybutyric acids then later, acetone, appear in the blood and are excreted in mine

With regard to the course of these acids it seems probable that they are derived not, as at first thought, from glucose, not from protein, but from abnormal breaking down of fats normal metabolism fats are completely oxidised into carbonic acid gas and water but under certain circumstances, complete oxidation does not take place, and the above mentioned acids If this occurs on a large scale, are produced the conversion into acetone fails to keep pace with the production of acids, and therefore acetone appears first in the urine, then diacetic acid and finally beta-oxybutyiic acid special circumstances under which the breaking down of fats deviates from its normal course occur when the tissues are unable to obtain sugai from the blood This has been proved experimentally (3)

Normally the body appears to be able to neutralize even larger quantities of these acids, first by using up the sodium and potassium reserves, and then by using that ammonia derived from the splitting up of proteids which was going to be used by the liver in the manufacture of urea. There comes a point, however, at which neutralization can no longer take place and the

blood is flooded with acids and acid intoxication

So far the conditions in which acidosis is known to occur are (1) in diabetes and diabetic coma, (2) starration, (3) the so-called cyclic vomiting of children. (4) salicylate poisoning, (5) the toxædelayed chloroform mias of pregnancy, (6) The last of these is the one which poisoning Now it has been shewn by concerns us most Battier and Soulier (4) that chloroform diminishes the amount of glycogen in the liver, and the blood being thus staived of its sugai abnormal fat metabolism follows and the train of events above described leading to acidosis and acid intoxication is bound to follow so long as the chlo-10form is still interfering with glycogen metabo-

With regard to the kind of patients in whom delayed chloroform poisoning is found, they are said to be (1) diabetes, (2) fat children, (3) starved patients (in which connection it should be noted that the danger is said to be greater if there has been a long interval between the last meal and the administration of the anæsthetic) In other words, the patients are those with a tendency to acidosis to whom the action of the chloroform in diminishing the glycogen in the liver proves the last straw

Of our patients, case I had been semi-starved for years, and very much starved during the week she was under observation, as she comited nearly everything taken by the mouth. Case II was an abnormally fat child the glycogenic function of whose liver must certainly have been deranged by excessive carbohydrate ingestion.

We consider that the question asked above as to the factors which rendered these patients more hable than others to delayed chloroform poisoning finds its answer in their tendency to acidosis

The conclusions to be drawn are (1) to test the urine with Fe Cl<sub>2</sub> for presence of diacetic acid as a routine pre-operative and post-operative measure, (2) to avoid prolonged starvation before operations (3) to give ether to fat people, starved people and those in whom acidosis is suspected, or found by the urine test before operation (4) In those patients whose urine shews the presence of these ketone bodies after operation, or who shew signs of delayed chloroform poisoning supervening, the trial of glucose and massive doses of ilkalies given intravenously has been recommended, and seems to be a line of treatment on a rational basis. So far no recovery has been reported from this most fatal form of poisoning

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### ON THE USE OF SCOPOLAMINE MORPHINE AND ATROPINE IN PREVENTING SHOCK DURING CHLOROFORM ANÆSTHESIA.

By J J F DUNN,

Asst to Civil Surgn , Mussoone

DURING the past few years, the practice has been introduced of giving certain hypnotic diugs as a preliminary to the administration of The usual custom has been general anæsthetic to inject a small dose of scopolamine and morphine a short time before the administration of the anæsthetic is begun, with a view to inducing a pieliminary drowsiness so that less of the anæsthetic is required to obtain and maintain satisfactory anæsthesia As far as I am aware, attention on this subject has been directed almost entirely to the use of scopolamine and morphine in combination, while atropine 18 only very casually advocated, as much as to suggest that its use of exclusion makes no appreciable difference to the after-condition of the patient. The object of this article, therefore, is to call attention to the value of a combination of scopolamine, morphine, and atropine as preliminary to the induction of anæsthesia by chloroform, with a view to the prevention of post-operative shock, a most important result, and one that would appear to be due less to the scopolamine and morphine whether singly in combination, and more to the atropine, and which does not appear to be so widely appreciated as it deserves

During the past few months, the method has been adopted in all serious cases to which I have administered the anæsthetic and with most satisfactory results. These cases were of a very varied nature and a brief mention of some of the more important is appended with a view to demonstrate more forcibly the advantages and safety of the method, which would appear to render possible operations on some patients on whom one would otherwise hesitate to operate

Case 1—European female, age 45 year-Intensely anæmic as the result of repeated uterine hæmorrhages Operation—Abdominal Panhysterectomy No shock

Case 2—European male, age 55 years A very "poor case ' for operation Had double inguinal herma for 30 years, double stricture of rectum and spinal curvature for 20 years. Operation—Relief of strangulated herma (right) and double radical cure. Owing to the spinal condition chloroform had to be administered in the sitting position, the patient being well propped up with pillows. No shock

Case 3—Native female, age 30 years, very poor physique, contracted pelvis. Operation—Cæsarean Section—No shock and no deleterious effect on infant

Case 4—European female age 57 years Operation—Exploratory laparotomy No shock

Case 5—European male, age 35 years—On a previous occasion the operation of perineal cystotomy was performed on this patient without the use of scopolamine, etc. He took a large amount of chloroform and caused much anxiety during its administration. Operation—Exploratory nephrotomy. No shock, took a relatively smaller quantity of chloroform and caused absolutely no anxiety.

Case 6 — European male child, age 12 years Operation—for the relief of abdominal adhesions after appendicitis No shock

Case 7—European female, age 52 years Had had rheumatic fever and suffers off and on from "neuralgia of the heart" Aortic systolic murmur present and patient very stout Operation—Vaginal hysterectomy lasting one hour and forty minutes No shock

Case 8—European female, age 30 years, three months pregnant Operation—Radical cure of inguinal hernia No shock and no deleterious effects on pregnancy

Case 9—Native male, age 22 years Operation—Thyroidectomy for enlarged and cystic thyroid gland. In this class of case general anæsthesia is considered to be particularly dangerous, Kocher among others preferring to operate under local anæsthesia. This patient suffered absolutely no shock and caused no anxiety during the progress of the operation.

All these cases made good recoveries and in none of them was there the slightest amount of shock, though the general condition of several was such, that without the use of the injection, some amount of shock must have occurred amount injected was scopolamine gr  $\frac{1}{100}$ , morphine gr  $\frac{1}{6}$ , atropine gr  $\frac{1}{10}$ , except in case 6 where the dose was halved on account of age, and in case 7 where the dose of atropine was increased to gi  $\frac{1}{50}$  on account of the state of heart, and the patient's previous history injection in each case was given half to one hour before the administration of chloroform was begun, what makes this combination so particularly valuable is perhaps not very easy to say, but the following considerations may be helpful in elucidating the true conditions

Chloroform paid the Hyderabad Commission undoubtedly L. by acting directly on the cardiac muscle, and by stimulating the cardio-inhibitory centre in the medulla. It also causes a great fall in blood pressure, for, though the respiratory centre is also depressed, and in the greater number of "accidents,' the respirations cease before the heart beat, yet the fate of the patient in such cases depends on whether or no the heart has been injured to such an extent as to be unable to carry on the circulation

It is well known that the first few minutes constitute the most dangerous period in the induction of chloroform anasthesia and lembles has shown that early fatal arrest of the heart may be due to excessive inhibition of the weakened heart. Hill has further pointed out that failure of the respiration may be caused by animum of the centre due to a low blood pressure. Such weakness of the heart therefore constitutes a double danger for not only is the circulation endangered by it, but the respiration is indirectly weakened.

Now, it was long ago pointed out by Professor Schafer that atropine which appears to be the most valuable drug in the combination, if given in a dose sufficiently large to quicken the pulse, i.e., to paralyse the cardio-inhibitory apparatus, will prevent chloroform stopping the heart, nor under these circumstances could the heart be arrested by shock

Attropine paralyses the inhibitory terminations of the vagus in the heart and stimulation of this nerve, therefore, causes no slowing of the heart's The heart is therefore in the same position as if the vagus were divided in the neck Along with acceleration of the pulse, the other effects of vagus section are also produced. viz incice. of systole decrease of diastole, and The blood presincreased output per minute sure is also increased partly by this increased output and partly by a contraction of the arterioles in the abdomen due to stimulation of the vasoconstrictor centie in the medulla It thus acts also as a hæmostatic

In fact according to Waugh, who has collected a large amount of information on the homostatic action of atropine, this diug will control any form of bleeding except that from a large artery Thus another element in the production of shock, viz, homorrhage, is abolished

In addition attopine is a powerful stimulant of the respiratory centre, and is a further safeguard against the depressant effects of chloroform on that centre. It also, by its action on the heart and blood pressure, prevents anomia of this centre to which respiratory failure is often due. The vagus terminations in the bronchi are depressed and cough and dyspnæa are prevented. Another beneficial effect of atropine is on the gastrointestinal tract, whereby the secretions are diminished, abnormal contractions are prevented, but normal peristalsis is not affected. The result is that post-anæsthetic vomiting and post-operative flatulence are reduced to a minimum.

Scopolamine has an effect similar to that of atropine on the caidio-inhibitory apparatus. It also acts as a central sedative producing sleep

Morphine depresses the higher central centres producing sleep. The reflex excitability of the motor centres is depressed and the sensibility to pain is lessened to a considerable extent. There

is never much depression of the cardiac centre and blood pressure is unaffected. The respiratory centre may be depressed but never to such an extent as to cause total loss of exertability to stimuli. The secretions and movements of the intestines are also diminished. The drug is also stated to exercise a slight homostatic effect.

The following results are therefore produced by the use of the combination —

- I The patient is brought to the operating table more or less stupid and sleepy, and consequently there is as a rule little or no "operation funk"
- 2 Owing to the naicosis and lessened sensibility to pain, a relatively small amount of chloroform is required to obtain and maintain satisfactory anæsthesia, and what is more important, the degree of anæsthesia never requires to be pushed so far as to cause complete loss of the coincal reflex, even in the most severe abdominal operations, consequently
- 3 There is an entire absence of stertor and embarrassment of respiration during the stage of anæsthesia, and hence there is no need for the use of tongue forceps and pushing forward of the lower jaw, matters of great importance to the subsequent comfort of patients, who, when these manœuvies are employed often complain for days after of a sore tongue and pain at the angle of the jaw
- 4 The paralysis of the cardiac inhibitory apparatus, stimulation of the respiratory centre, increase of blood pressure, lighter anæsthesia and hamostatic action produced, are all powerful factors tending to the absolute presention of post-operative shock
- 5 Owing to the effects on the gastio-intestinal tract, post-anisathetic vomiting and post-operative flatulence are either absent or reduced to a minimum, points of great importance in abdominal cases
- G The drowsiness and lessened sensibility to pain continue for some time after the operation allowing of the initial soreness of the wound to wear off to a considerable extent and thus conducing immensely to the comfort of the patient
- 7 The method appears to be applicable to every class of case, and even seems to be applicable in the case of fairly young children

The cases were all operated on by Lt-Col<sup>o</sup> C Milne, i ws. Civil Surgeon, Mussoorie, to whose kindness I am indebted for permission to mention them and at whose suggestion a careful trial was made of the method in them

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### INTESTINAL OBSTRUCTION AND SOURVY

Bi A. L SHEPPARD, MB, BB,

CAPT, IMS,

Civil Surgeon, Fort Sandeman

Notes of this case may I think prove interesting. Certain points bearing on the etiology of acute intestinal obstruction, while far from conclusive owing to the difficulty of obtaining a correct history, seem to point to scurry or some allied condition as the originating factor.

History of Acute Stage—I first heard of and saw the patient at 11 AM on April 9th, and he was a Pathan (Sheram), about 50 years old who had been over the Afghan border as an outlaw for the past two years

He had walked to hospital at 3 a M. with a story of great abdominal pain for the last mine hour, following a large meal of meat. The bowels were open on previous day but not since

Seen by the Sub-Assistant Surgeon, castor oil had been given with no effect, and at 8 A.M. there was a very small result to an enema, while three ounces more castor oil at 10 AM were ineffective

Condition — When I saw him he was doubled up with pain, and had just vomited. It had no fæcal smell. The face was drawn and eyes sunken, tongue furied and brown. The abdomen was distended and painful on pressure, without localizing tenderness. In regular intestinal peristals was marked, especially above the umbilicus. The rectum was empty, and not ballooned and there were no piles.

Pulse was feeble 110 Temperature 982 General condition was extremely bad, too bad to obtain a history then, and he was much emaciated No enlarged glands could be felt

A diagnosis of acute intestinal obstituction was made, and considering his condition and age the most probable cause seemed to be carcinoma of the sigmoid

Operation was begun at 12-30 under chloroform and a left iliac incision was accordingly made long enough to insert my hand

A decided amount, of free cloudy fluid was found The sigmoid, hernial and cæcal regions were normal

The large intestine was empty, and the presenting part of the small was red and distended to a diameter of one and a half inches

Several feet of this were examined bit by bit outside the wound, and then a collapsed portion appeared. At this point was a band running from the antimesenteric border to the base of the mesentery. Within six inches there were three such bands, one of which certainly seemed to have been stripped up from the mesentery, and then formed adhesions and contracted. They were all 3 or 4 inches long, and were inflamed, though not of very recent origin. At a spot on the gut

close by was found a tag of a recently broken

adhesion tripped with lymph

The local intestinal peritoneum was red and slightly hæmorihagic. At one place there was fairly definite constriction caused by the bands, but not blocking the lumen of the gut entirely. Obstruction was probably only caused by venous and arterial construction and paralysis

No further search was made

These bands were cut off close at both ends and ligatured, one distended coil was fixed outside the wound and a Paul's tube tied in

A lot of gas and some fluid escaped immediately

Progress —In 24 hours two bedpans full of fæces had drained away, the abdomen was flat, there was no pain or comiting Except for hot water he was fed per rectum for 48 hours with milk and saline and occasionally coffee

During the 12th and 13th five motions were passed per rectum, probably only from below

the drainage point

As the opening was in the jejunum I thought it best to close it as soon as possible, and accordingly on the 13th did an end to end anastomosis

Second operation —As the wound was fouled round the tube, the whole area after being cleaned up was painted with tincture of iodine The loop was freed, pulled out, and the abdomen carefully packed off all round.

Carwaidine's clamps were put on, and about seven inches of intestine with a triangular piece of mesentery cut away Packs were removed and clean ones inserted, and the ends of the intestine sutured with silk by the Czerny Lembert method, only sutures were made continuous for four or five stitches, and then tied

The mesentery was sutured, and one or two

supporting stitches put in

The gut was then returned into the abdomen which from sight appeared normal with the omentum lying evenly over all

A small gauze drain was inserted for two days towards the left iliac fossa, and the wound sutured

As only the compounder was available to assist, the operation took 13 hours, but the patient's condition was fair and pulse 120

Progress -Nutrients of milk, saline and egg albumen were given, with only hot water by mouth for the first four days

The temperature remained normal except on the 15th and 16th when the wound was 1ed and fomented

There was no pain, vomiting or distension

From the 18th to the 28th the motions were loose with occasional and increasing mucus

Nutrients were stopped at once, and mag sulph in frequent doses tried, with an own oot and milk by mouth,

As he did not improve and was extremely emaciated on the 28th he was put on digitalis and nur vomica, and food was increased rapidly nice, sanatogen, and cuidled som milk (a staple food of the Pathan) was given

He became hungry had no pain and went on improving without interruption, the diet being mereased accordingly, and meat being given

Six weeks after the operation he was walking about and left hospital fat and well on June 4th

Past history—Chief interest attaches to this, which I investigated carefully when he was well enough

In October 1912 in Afghanistan six months before admission he passed fresh blood by the rectum at the time of going to stool but not intermixed with the motions, twice or thrice daily for two or three weeks. At the same time he had blotches of subcutaneous hæmon hage on his limbs especially the aims

(About a fortnight before leaving hospital he had three of these on his left aim megular, the size of a thumb nail shewed no tendency to extend or multiply and all came in three days His blood slide was normal was given calcium chloride gi xxx for three days) There was no epidemic of illness in his district at the time. Typhus in this district is sometimes met with, scurvy at times is common, and bad enteric is very rare

He had no hæmoptysis, hæmatemesis epistavis or hæmatura and no pain

He also had no teeth, a most uncommon state Questioned regarding this he said for a Pathan that amongst his people when a man died his friends closed his mouth If this was done before death the teeth of the one who did it invariably This misfortune had happened to the patient two years before Hence his lack of teeth !

Probably he had severe So much for his story scurvy and so lost them

People in this part of the world who once get sem vy shew a decided tendency to get it again. and become predisposed to it, and I am inclined to think that the rectal hæmorrhages in October may have been due to scurvy also

Following these symptoms he was so iun down that he could not walk for three or four He described his legs as so weak that he could not lift them off the bed, and when he finally returned to British territory he had to travel entirely on a camel as he was unable to walk at all

In this way he also came 47 miles to Fort Sandeman ten days before I saw him on urgent business During these ten days he improved and was able to walk about

Remarks -Other suggestions naturally occur to one to account for the melæna

Hamorrhoids — There was no evidence of these, nor was there any enlargement of liver or spleen

Enteric — Perpetual hamorrhages such as described would almost certainly have proved fatal, besides which severe enteric is I think very rare amongst these people, and there would have been other cases probably at the same time

Typhus — Though not uncommon, this is an unlikely history, as these cases recover rapidly

Dysenter y—A recognised disease amongst Pathans He was emphatic that it was not dysentery as he had no mucus and no pain, either as colic or tenesmus. As they know dysenteric symptoms only too well I am inclined to agree with him.

Malignant disease—No evidence found on laparotomy

Scurvy—Is fanly common I have seen about fifteen severe and many slight cases this year alone. It is known by the local people as a disease that affects the mouth and gums

If the original cause of the loss of his teeth was scurvy (and I can think of no other probability) it is quite likely that he would get it again

The local effect of scurvy on a toothless mouth is probably very slight, and the subcutaneous hemorihages pallor and extreme weakness, and with emacration lasting for months make up a quite likely history for this most variable disease

Melena is not common in scurvy but it occurs supposing my idea is the correct one what bearing did the scurvy have on the mesenteric bands

There was hæmorrhage into the bowel and skin, why not into the peritoneum and peritoneal cavity, causing on absorption peritoneal adhesions

Pathans are great meat-eaters and the acute condition followed on a large meal of meat probably gulped down in half chopped lumps with no teeth to masticate it

The bands may have been several months old, but recently inflamed and one had ruptured elight obstruction by old bands the residue of an old intraperitoneal hamorrhage during scurvy, a couple of pounds of unmasticated meat, violent peristals is local inflammation, swelling, and constriction of the intestinal blood vessels completes the story

Conclusions —There are reveral interesting

First—His recovery, after the extremely emacrated condition he was in to begin with

Second—The mucous diarrhoea which troubled him so much after the second operation, entirely disappearing when his diet was rapidly increased

The det was rapidly increased adhesions were caused by bands formed after attack of scury

Fourth—These bands were the cause of acute obstruction following a large meal of unmasticated meat

I regret I was unable to make full investigations into the blood. The slide I saw was normal in every respect, but the coagulation time, etc., would have been instructive

As the hospital is 170 miles from the railway apparatus is limited

I am indebted to my assistant in the Civil Hospital, Sub-Assistant Suigeon Gopal Das, for the help he gave me in electing the history and for the interest he took in the case, and also for the skilful way he gave the anæsthetic at both operations

# IS SYPHILIS A FACTOR IN BLACKWATER FEVER?

Bi A II NAPIER, CAPT, IMS

The ætiology of blackwater fever is uncertain, and many theories are current as to its causation—The malarial theory—the quinine theory, malaria plus another cause—and that it is a disease due to an unknown cause (the organism recently described by Coles in the B M. J)

Blackwater fever has also been attributed to syphilis, and in this I concur and put forward the following theory —

Blackwater fever is found in syphilitic cases giving a positive Wassermann reaction, the actual onset of the disease being brought on by chill, over exertion, administration of quinine or an attack of malaria

Blackwater fever is symptomatically indistinguishable from paroxysmal hæmoglobinuria. Manson' states as regards paroxysmal hæmoglobinuria occurring in the tropics, a diagnosis might be impossible. Both diseases have the same symptoms, paroxysmal hæmoglobinuria, as a rule, is of a milder type. In my opinion, the two diseases are the same, or at least, the symptoms are produced in the same way. This view is supported by the fact that Dickinson<sup>2</sup> reports that 71 per cent of cases of paroxysmal hæmoglobinuria examined by him give a history of malaria

The following points in connection with paroxysmal hæmoglobinuria are of interest Copeman<sup>3</sup> writes "a definite specific history (of syphilis) has been forthcoming in all the cases that have come under my own observation"

Browning and Mackenzie make the following observation—"Three cases of paroxysmal hæmoglobinuma which we examined recently all had positively reacting sera"

These cases at that time were the only ones examined by the above observers and they all gave a positive Wassermann reaction and were cases of congenital syphilis without any of the

Camus & Paymez<sup>6</sup> describe three groups of paroxysmal hæmoglobinuria

First—Muscle hæmoglobinu ia—hæmolysins being produced in the muscles on exertion particularly walking

Second —Blood corpuscle hæmoglobinuria due to destruction of the red blood corpuscles in the

Thud—Hæmoglobinuna due to the hæmolytic action of the urine

According to Ehrlich<sup>6</sup> hæmoglobinura frigore is due to an autohæmolysin produced especially by the blood vessels as a result of the cold and is not due to extra-sensitiveness on the part of the red blood corpuscles to the cold

Donald and Landsteiner pointed out that the hæmolytic amboceptors only combined with the red blood corpuscles at low temperatures disproving the latter part of Ehrlich's statement

From the above statements one can gather the following information —

Paroxysmal hæmoglobinuita is a disease occurring in syphilities, many of whom have also had malana The hæmolysins are formed in muscles or blood vessels, and combine with the 1ed blood corpuscles in the peripheral circulation The 1ed blood corpuseles are in the cold rendered vulnerable to the hæmolytic amboceptors by cold and become sensitised in the peripheral Hæmolysis occurs after the sensitised red blood corpuscles unite with the complement (which is normally present) in the internal circulation

In the same way, in Blackwater fever the hemolysins are formed in the muscles or more probably in the blood vessel walls after exposure to cold, exertion, and the red blood corpuscles become vulnerable to the amboceptor after an attack of malaria, debility, the partaking of On being sensitised the red blood corpuscles are hæmolysed after combining with the complement in the internal circulation only suitable medium in which the amboceptois can be formed and not destroyed is syphilitic serum with a positive Wassermann reaction

I suggest that in Blackwater fever a Wassermann should always be done, and if positive Salvaisan administered

I have kept these notes for some time and only publish them as I am not likely to come across cases of blackwater fever to test them

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# Mirror of Hospital Practice.

NOTES ON SOME EXCISION OF THE THY ROID, PERFORMED AT THE SREE SREE SREE BIR HOSPITAL, NEPAL (KHATMUNDU)

BI SURESH CH. DAS GUPIA, LME (Cal).

Medical Officer, Bir Hospital and Lecturer of Anatomy, Nepal Medical School

In the course of a few months while Officiating Principal Medical Officer, Bir Hospital, I made up my mind to try operative treatment for goitre cases here, as for medical treatment I tried both local and internal means without any satisfactory 1 esults

This disease, as well as elephantiasis of leg and scrotum are no less plenty in this hilly country, and with some difficulty and persuasion I admitted some variety of goitie cases and thus opened the path for systematic treatment by operation, a short note of each of which is given below .

Case I-D P, male, age 12, admitted for operation on the 20th December 1911, in a fauly healthy condition The tumour was of the size of an orange and situated on the left side alone and of cystic origin Patient was operated on the 22nd December, incision being given along the longest diameter of the tumour nearly parallel to the anterior edge of the sterno-mastord and having been separated from the surrounding structures all around and behind, was removed together with a portion of the true gland of the same side, on which it grew The wound healed up by first intention, and the patient was discharged as cured on the 31st December 1911

case II —N K, male, age 35, was admitted on the 27th December 1911, the tumour was semi-fluctuating and of a parenchymatous variety, its right lateral and middle lobe were equally enlarged, and the latter hanging down up to the I gave a curved meision with convexity downwards from little above the right angle of the lower jaw up to the supra-sternal notch and following the usual steps, the tumour was successfully removed Patient was discharged as This patient cured on the 11th January 1912 was quite idiotic at the time of admission, but looked intelligent at the time of discharge

Case III -M L, male, age 25, was admitted on the 21st January 1912, the tumour was of 8 years' duration and of a large size, unilateral, exceedingly haid, immovable and of stony feel There had been slight pressure symptoms also and change of voice, the superficial veins of the neck were engorged and dilated. After the incision, the tumoui was found to be adherent to the surrounding structures, and even to the

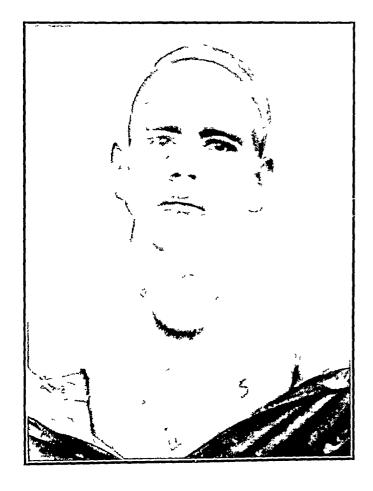
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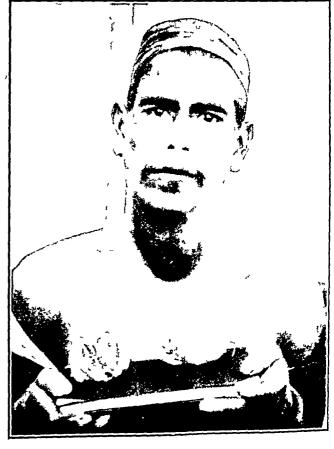
# NOTES ON SOME EXCISION OF THE THYROID PERFORMED AT THE SREE SREE SREE BIR HOSPITAL, NEPAL (KHATMUNDU)

Br SURESH CH DAS GUPTA, LMS. (Cal),

Medical Officer, Bir Hospital and Lecturer of Anatomy, Nepal Medical School







sheath of the carotid, almost all the depressor muscles of the neck of the affected side appeared as mere fascias. The root of the isthmus was thick, short and calcareous, so that the knife could not make its way through it without the calcareous masses being peeled out. Patient was cured and discharged on the 5th February 1912

Case IV -K N, age 30, male, was admitted on the 3rd February 1912, with an enlargement of the whole neck and nodulated all over The incision was given from one side of the neck to the other, resembling Kocher's collar incision, but slightly curved downwards over the most prominent part Having separated the upper and lower skinflaps, I approached the tumour of both sides at once, clearing it on each side I removed the growth leaving the isthmus in the middle with a small portion of the gland attached on each side to prevent the after-effects It was a multilocular cyst with some hypertrophy of the glandular prevent the after-effects structure here and there and extensive colloid The wound, however, healed up by degeneration first intention at first, but 6 days after, a small tumour appeared at the lower angle of the incision, whence a flairy mucoid discharge came I scraped out inside and swabbed the cavity with strong rodine with the result of the wound being healed up by granulation. Patient was cured and discharged on the 8th March 1912

The temperature of all these patients except the fourth one kept normal all through from the time of admission to the time of discharge, their stay in the hospital averaged 20 days, longest 36 days and shortest 12 days. Most of the gorie patients were hard of hearing, but improved considerably after operation

On the whole, the operation for gottle is not a very difficult one, any surgeon with a cool head and careful hands can perform it. Of course the operator should be careful in selecting cases for operation, he should attempt easy cases in the first place and gradually more and more complicated ones,

Thyroid cysts are the easiest to remove, especially when they are movable, multilocular cysts of the thyroid are a little more difficult and more so, when they penetrate deeply or run behind and above the angle of the Jaw and are adherent Next comes the category of true quitie-an enlargement of the thyroid are two varieties—one soft parenchymatous, another hard lobular and fibrous, the former being diffused and uniformly enlarged, and having no line of demarcation are not suitable for operation in the primary stage: the latter present three forms . - Movable, fixed and calcareous, each more or less circumscribed and distinct, but generally unilateral Last of all is the malignant variety—which is simply carcinomatous in origin

The essential points of this operation, which is based on only on my own personal experience, but from observation on other cases operated

before me or with my assistance—will be considered under the following heads —

- (1) Preparation of the patient
- (2) Position of the patient
- (3) Anæsthesia and instruments
- (4) Line of incision.
- (5) Ligature of superficial veins
- (6) Exposure of the tumou.
- (7) Lighture of important vessels
- (8) Precaution
  - (a) Prevention of an embolism
  - (b) Safety of important vessels, nerves, capsule of the thyroid trachia, esophagus, pleura, etc
- (9) Atter treatment.

If all these points are minutely attended to and precautions carefully observed by a surgeon, I see no reason why the operation should not be successful. Four assistants are usually necessary for an ordinary operation, one to assist in the operation, second, to keep the head fixed third, in charge of the anæsthesia, fourth or the last, an extra hand for instruments and emergencies. My chief assistant was Dr. Amulya Ch. Bhattachargee, sub-assistant surgeon, and others were implicately hospital assistants qualified in the Nepal Medical School. I performed my last operation with the help of military assistants alone.

- (1) As regards preparation of the case, there is no important feature in it, as a rule, patient is given a bath on the previous day, whole body especially head and neck being washed with soap and warm water and on the night previous, a purgative usually calomel is given at bed-time. No previous antiseptic dressings is necessary, a few hours before operation, the affected area is rubbed with ether and just before operation, the part is painted with official tinct rodine, and that's all. In addition to other antisepsis, I always take some tinct rodine into my hand and rub it all over, especially the tips of fingers, and make my assistants follow the example
- (2) Patient is placed on the back with a rounded pillow or a hot water bag of suitable size filled with water of body temperature and wrapped up in sterilized towel—under the neck All parts except the area of operation are covered with sterilized towels. Six F. Treves' advice—that the "chin should be kept in a line with the sternal notch"—has a great practical value attached to it and should be followed with utmost care to the end of the operation.
- (3) I use chloroform generally, and some times A C E mixture for old and weak patients, by means of a Junker's inhaler. I have little faith in cocaine or other local anæsthetics. Hypodermic injection of strychnine and atropine are always kept ready in separate syringes for emergencies. We have saved one case with profuse perspiration, gasping breath and extreme cyanosis by a single injection of atropine Tongue forcep and gag should always be at hand.

Instruments —Scalpel two, Spencer Well's forceps, two dozen pans, one ordinary masal polypus forceps, curved scissors on the flat, aseptic joint two, plane scissors one, anemism needle one, Hernia for Cullingworth's needle one, retractortwo, dissecting forceps two, a probe and a directormate all is wanted

(4) Incision should be free When possible parallel to the anterior edge of the sterno-mastoid muscle, but generally along the longest diameter and most prominent part of the tumour This procedure will help an operator to expose the growth and the surrounding structures in relation more vividly, of course the out border and the posterior surface of the sterno-mastord will bear an important relation and landmark to the great vessels and nerves of the neck a great risk in working in a dark and narrow space, and I would warn an operator from making a small incision, which carries with it manifold dangers and difficulties The deep part of the wound should follow the superficial incision as a On the whole I don't lay any hard-andfast rule regarding the line of incision, each should be judged by its own merit according to the size, position and direction of the tumoui

(5) The golden rule is, that each vein of the neck should be divided between two ligatures or clamp forceps according to the urgency experienced a great difficulty in this direction the veins should neither be tied too loose or too tight, if it is little loose, the ligature will slip. if it is little tight, it will cut the thin-walled vein resulting in either case troublesome hæmorrhage. In my opinion, fine or medium twisted silk is the best stuff for ligature, a catgut will slip in no time and is useless. The aneurism needle being passed under a vein visible across the line of incision and having been threaded, is drawn out, the silk cut into two equal pieces is drawn away from each other and tied neatly leaving an interspace of at least quarter of an inch for division with scissors. Sometimes the veins of the neck being overstretched becomes almost unrecognisable, but tollowing Sii F Tieves' direction, by having "the head lifted now and then"-which make the vein quite full and distinguishable, the task is extremely simplified

(6) After the preliminary incision, the subcutaneous fascia will appear with the platysma myordes almost inseparable, and on their division the depressor muscles will come in view, they should be refracted outside as far as possible to reach the surface of the tumour with its capsule intact, if not they might be divided in the middle and stitched together with catgut, or snipped off short at the end of the operation Beneath these muscles, the capsule will be clearly demonstrated, every possible care should be taken not to injure the capsule at its anterior or lateral aspect, in order to avoid wounding the veins, which he beneath and is almost adherent

to it In this part of operation, the sharp blade of the knife should be sparingly used; the handle, a dissector fingers or curved scissors on the flat, will serve a better purpose Personally I have derived a great advantage in dissection of a part of this nature, with the blades of a curved scissors on the flat separately, using the upper convex blade on the left and lower concave on the right (of the patient), i.e., with cutting edge down, the concavity of the blade to fit the convexity of the tumour

The difficulty arises, not when the surgeon knowingly opens the capsule, but when he does it without knowledge and struggles to separate it from the gland tissue. I had opened the capsule and cut the gland myself but at once brought the part in opposition by means of stitches or clamps with no bad results whatsoever

As a rule, first of all, the anterior aspect, then the lateral upper, posterior and last of all the inferior portions are cleared in order, enucleation should be made by means of a finger, dissector, handle, seissors either united or blades separate Next, the mass is turned over inside and the posterior surface is cleared as far as the middle line of trachia in order to isolate the isthmus from its attachment to trachia Now the 1sthmus 1s grasped at the outermost part with a polypus forcep, and Staffordshire or interlocking pedicle ligature is applied on the trachial side by transfixation with a Hernia or Cullingworth's needle and divided in between, care being taken not to include in the ligature or cut the recurrent laryngeal nerve

(7) As regards the division of important vessels, it is better to apply two ligatures similar to those of veins at the required site and divide between them. By doing so, a bloodly operation can be performed at ease. I generally apply a ligature on the friendly side and a clamp towards the other in order to save time and trouble. Inferior thyroid aftery should be ligatured quarter of an inch from the lower border of the tumour and cut through just as its branches enter the tumour in order to ensure the safety of the recurrent laryngeal.

(8) A—As for prevention of an embolism, if the directions given about the ligature and division of veins are followed in minute details, there is no danger. The veins of the neck having value, a minute vein also should not be neglected.

B.—In order to avoid wounding veins, arteries, nerves, and other important structures, the operation having in mind their respective relations—should proceed very cautiously every step in the operation and use his knife or any cutting instrument with utmost care. No structure especially resisting should be cut or tred without thorough examination of the part and surrounding parts in relation, and full satisfaction of the individual structure,—its position, course and direction

I have never used a dramage tube in any of my cases, I apply ligatures or torsion to all bleeding points, and stop all oozing even, then wash thoroughly the operated area with hot normal saline, and then bringing the flaps in opposition put the interrupted striches with silkworm gut, a quarter of an inch separate from each If the parts are not properly opposed still, I apply a continuous suture in the interspace throughout. Next tinct of rodine is painted all over the stitched area and around, and a light dry and sterilized dressing is applied and bandnged with thin muslin in the following manner -First, the dressings having been fixed by a few turns (say, 4 or 5), the roll of bandage is carried from one side of the neck, through the axilla of the opposite side and across the back and beneath the other axilla and up again to the other side of the neck, and so on—the 'figure of 8' bandage List of all, I give an injection of morphia generally, before removing the patient from the table

(9) After-treatment —The shoulders should be kept raised and head fixed by means of pillows or sand bags for some days after operation say, With the earliest symptoms of cough I give tinct camphoi co, both as a cuiative and prophylactic If there is not much bleeding during operation, I don't give saline per rectum At first I used to give no food by mouth as the patients complained of difficult deglutition, but nutrient enemas were given. In my subsequent cases, I gave liquid food in small quantity at regular intervals If the temperature goes high I remove the dressings, inspect the wound and do the needful, if not, I remove the stitches on the 7th day as a rule and leave a light dressing for some days and then discharge But if the case becomes septic, there is a great probability of an unyielding sinus being left so every precrution should be taken to keep the wound aseptic during and after operation

## A CASE OF MYELOCYTHÆMIA.

BI BANARSI DAS, MB, BS,

Junior Demonstrator of Pathology, King George's Medical College, Lucknow

S A, Mohammadan male, æt 40 years, was brought to the medical out-patients' department of the King George's Hospital on the 7th July 1913. He looked very pale and had to be carried about in a doolie. His chief complaint was constant bleeding from the nose which became worse at might and to which also he attributed his weakness and pillor. The nose bleeding was slow but practically continuous, and the patient kept several rags of cloth on which he received the blood as it flowed from the anterior nares. He

had several of these rags soaked with blood when On inquiry it was he came to the hospital found that the patient was enjoying very good health till about two years ago when he had a sudden attack of epistaxis which lasted for ten days in spite of the treatment he received at Bhopal where he was working as a clerk. days' continued bleeding weakened him considerably, and he had hardly regarned his former health about three months after the initial attack he again started bleeding from the nose This second attack was of a week's duration but it left him unfit for work. He has failed to keep an accurate record of the course of the disease, but from what he said in reply to a number of questions it was gathered that he has been subject to recurring attacks of epistaxis of variable duration (a week or more) with varying intervals (three to six months)

Abdominal palpation revealed the presence of an enormously enlarged spleen which extended an inch beyond the middle line and two inches The liver was apparently below the umbilious normal in size Questioned about his previous illnesses the patient said as far as he could recollect he never suffered from fever of any sort malarial or otherwise He has a grown up son and a daughter who is married and has children None of his own or his daughter's children ever had epistaxis or anything else similar to what he has got He is suie his mother also was free from the disease as well as all his relatives.

His urine was of a strongly acid reaction The specific gravity was 1010 and there was no albumin He also complained of priapism and spermatorrhoea of a week's duration. In discussing the symptoms of spleno-medullary leukæmia, Oslei refers to priapism as a curious symptom which has been present in a large number of cases. It may be the first symptom

The temperature fluctuated between 98° and 99° F during the few days the patient stayed in the hospital

The blood as it flowed from a prick in his finger was noticed to be exceptionally pale and thin, in fact watery. A preparation was made, and on looking down the microscope one's attention was arrested by the presence of leucocytes in enormously increased numbers number of leucocytes seemed to equal that of the erythiocytes in every field as that it was found most convenient to count the former square by square in the same preparation exactly in the same way as is done for the latter, using Toisson's solution as the diluent The total number of leucocytes was calculated to be 1,192,000 per cmm or nearly 150 times the normal erythiocytes were observed to be only 2,672,000 per c mm. or about half the normal number

The percentage of hamoglohin was estimated to be 13 per cent by means of Sahli's hæmometer. The hamoglobin percentage would probably be found to be higher if some other instrument—for instance, Olivers Gowers-were used for the purpose, as in these the 100 per cent or the standard is calculated average on the hæmoglobin content of the blood of a number of healthy adults, whereas in Sahli's instrument the standard is based on the amount of hæmoglobin found in the blood of some of his healthiest and most full-blooded assistants Sahli himself recommends the estimation of hamoglobin in the blood of a number of healthy individuals in a country, and the average struck should serve as the standard of comparison for that country Healthy upcountry youngmen don't seem to scale higher than 50 to 60 per cent But a very large number of observations extending over some time are required to enable one to form a reliable opinion

The colour index worked out to be as low as 24, and the ratio of leucocytes to enythrocytes was 1 to 2.2 instead of the normal 1 to 600

A number of blood films were stained by the Leishman process, and the picture presented under the microscope left little doubt as to the diagnosis The films showed a very marked increase in the number of white corpuscles in every field, but in addition to the usual varieties of leucocytes seen in normal blood there were numerous large mononuclear granular neutrophilic cells, myclocytes of Ehrlich The blood picture was characteristic of myelocythæmia or myelogenous leukæmia as was confirmed by the differential count -

Myclocytes	. 52 25 per cent
Polymorphs	38 25 per cent
Lymphocytes	3 25 per cent
Eosinophils	4 25 per cent
Mast cells	200 per cent

Unfortunately the ætiology of the disease is still obscure and so is the treatment only 24 cases in his wards in 15 years condition is rare, and when a case turns up there is every chance of its being returned as anæmia or chronic malaria unless the medical man has the equipment and the inclination to submit the blood of every case to a thorough examin-

To stimulate his professional brethren in the mofussil to take to hematological work is the one aim with which the writer resolved to record this case which in itself is highly interesting from its typical nature and the iarity of its occurrence My best thanks are due to Major C A Sprawson, IMS, the physician in charge of the case for his kind permission to take full notes of the case and also for a number of valuable tions

#### REFEI LACES

(1) Sahli's Medical Diagnosis (2) Osler's Principles and Practice of Medicine (3) Beattle & Dickon's Special Pathology

### NOTE ON THE USE OF CHIONANTHUS VIRGINIANA IN DISEASES OF THE LIVER

#### BY DR F ROUX

In all affections of the liver so common in India primary congestion or congestion resulting from gastro-intestinal disorders, incipient hepatitis. cirihosis in its early stage whether alcoholic or following on malaria, one important and constant symptom, from the therapeutic point of view, is the more or less congested state of the liver

It is one of the earliest symptoms to attract the physician's attention and great importance should attach to it, because, when first observed, it is possible to cure or, at any late, to lessen the congestion by a suitable treatment and, thereby, guard the patient against the complications of a disease which, once established, is frequently beyond all remedial measures In fact, too much attention cannot be given to the symptom of congestion, on the prompt treatment of which the patient's recovery depends

What are the remedies to which recourse is usually had in congestion of the liver? Venesection, frequently recommended in Europe, is a doubtful measure in the case of patients in India often weakened by a prolonged residence in the country or by previous ailments Further, this treatment only affords temporary relief

Purgatives, in most cases, are generally resorted to, the more so as, in the majority of ailments, it is useful to clear the intestines of their harmful contents which may often give lise to com-While the use of a purgative is advisable, those generally employed are not without haimful consequences

The more drastic, such as aloes, jalap, scammony have an unfavourable action on the liver, as they produce a congestion of that organ in particular, should be strictly avoided in cases where the liver is the seat of more or less pro-It forms, nevertheless, the nounced congestion base of nearly all the purgative pills used indiscriminately by the public without medical Aloes may indeed, in certain cases, give rise to biliary disorders

Laxatives are useful in the early stages of most liver ailments, but the only purpose they serve is to relieve the intestines and, while their use may be followed by a decrease of the congestion, the effect is not lasting What is required

is, besides restoring the functions of the bowels, to modify the hepatic circulation so as to permanently reduce the congestion

For some time in America, the use has been recommended empirically of a plant belonging to the order Oleacæ, viz, Chronanthus Virginiana. Its effects, however, are variable owing, as the writer has proved to use having been made of the bank of dired roots. If fresh sterrized plants are employed the results are remarkably better and more constant.

Tcheltzoff demonstrated that Chronanthus considerably increases biliary secretion, the increase bearing more on the output of water than on the constituent elements of bile. The results observed in America were confirmed by the writer's personal experiments at the Bichat Hospital, Paris

They prove that Chronanthus has a practically specific action on the hepatic circulation, rendering it of signal service in all cases of congestion more or less pronounced whether of the liver or of the portal system

The chief preparations of Chionanthus are the fluid extract (in equal proportions of bark and alcohol at 60 °C'), which is party soluble in syrup and causes a precipitate in water. It may be prescribed in doses of 2 to 4 grammes, twice or three times a day.

The tincture, in the proportion of 1 to 5, may be administered from 1 to 15 grammes daily and even more. In view of the considerable proportion of alcohol which it contains, this preparation should not be prescribed in the beginning of cirrhosis of the liver

Chronanthus, however, has only a feebly laxative effect and, therefore, only fulfils one requirement although the most important, viz, the disengorgement of the hepatic organ. Since it is, as we have seen, of the utmost importance to your the intestinal canal regularly, Chronanthus, in medical practice, might be usefully associated with other remedies capable of supplementing its particular action by a more powerful laxative effect.

The best remedies for that purpose, the writer believes, are It is Versicolor and Juglans Cinerca. The first of these is a diuretic and a laxative which stimulates biliary secretion while, at the same time, a non-irritant purgative. Juglans Cinerca, of which the valuable portion is the bark of the root, is a mild laxative free from irritant action which acts admirably in constipation.

By the union of all three a preparation is obtained combining all the essential elements in the treatment of the early stages of liver disorders. It any rate it appears to fulfil the two mum requirements, i.e., disengorging the liver and the portal system and regularly roiding the intestinal canal

# ROUND WORMS AND PREGNANCY.

BY T G S ROW,

Medical Oficer, Silian, Negri Sembilan, F M S

It would perhaps be a presumption on my part to write anything on this subject, but my experience in several instances of fever during the puerperal period, may I hope, be of some avail to others of my profession, since but little reference has been made on this subject which, in my opinion, plays an important rôle in the parturient female. I say expressedly 'fever during puerperium' as it would be a misnomer to call it puerperal fever. Most of such cases within my experience have exhibited almost similar symptoms and it is enough to quote one case.

The gul aged 21, delivered a healthy full term child and the puerperium went on quite noimally till about the 10th day During this time vaginal douches were being given every morning and a dose of the traditional castor oil on the fifth moining had relieved all consti-The lochial discharge was quite free pation and regular, and was changing colour Temperature was normal throughout, secretion of milk abundant, no tenderness of breasts or cracked There were no any untoward results during delivery as a ruptured permeum and the In fact the whole course was perfectly normal till about the 10th day when the temperature leapt at one bound to 105° which were acting regularly got bound up again Tongue got thickly furred and the lochial discharge which was gradually lessening and changing colour turned again blood red and became quite profuse requiring frequent change of There was slight wandering at times and but for the last noted lochial symptom, the gul began to exhibit most of the signs of puerperal septicemia Microscopic examination of the blood having revealed no specific cause, an initial dose of calomel was given and quinine was fieely administered with other antipyretics by the mouth, combined with ergotic injections to keep the discharge within limits The fever, however. showed no signs of abating keeping continuously for six days between 103° and 105° with a marked evening lise Involution was progressing satisfactorily, and no necessity as to any uterine injections or curetting was felt as the discharge was fiee throughout being quite odourless and there could thus be no suspicion of any retained placenta or lochial suppression Absolutely no cause could be found anywhere else, suggestive of this sudden trouble.

On the 7th night, however, ie, on the 17th night of delivery the patient appears to have passed a couple of worms which were luckily

noticed by the nuise in attendance. The next morning, on the circumstance being reported to me, I lost no time in giving the patient an efficient dose of santonine followed later by an ounce and a half of castor oil. This had the desired result nearly 15 to 20 round worms being passed that evening. The very next morning the temperature came down to normal and in a couple of days thereafter the discharge had appreciably diminished and the general condition of the patient considerably improved. Without much medication, the patient subsequently made an uneventful recovery.

Evidently then the whole trouble was one due to presence of round worms. Three similar cases having been encountered, I have now made it a rule to invariably give a 5-grain dose of santonine, on the 4th night after delivery, followed by castor oil next morning in all my cases. The result has been quite successful, and I would recommend a general use of santonine, in partunent females on or about the 5th day of delivery as santonine apart from being an anthelmintic is also an emmenagogue

In the case above-quoted the past history revealed the existence of recurring gastric disturbance and colicky pains at times. During pregnancy, which were mistaken for feetal movements and no anthelmintics or purgatives were administered for fear of premature labour. In the other two cases there was nothing to show or suspect any presence of worms and the pregnancies have had a normal run. It follows then that while round worms have no specific effect on pregnancy, they have an undoubted bearing on normal puerperium.

The question then naturally arises why worms should cause a general disturbance particularly during the puerperial period The presence of ascalides in the intestines does not seem to be in any way prejudicial to healthy pregnancy from it, I am constrained to think that the pressure of the gravid uterus keeps any ascarides present confined to their abode and probably the worms themselves feel quite comfortable in their situation with a bit of sustained pressure from without. The moment that this pressure is relieved in the course of parturition, the worms begin to feel that they have now more space to roam about, and thus then sudden activity after a prolonged rest results in an accumulation of obnoxious gases which when absorbed into the blood causes an auto-intoxication simulating That is, however, how I puerperal septicæmia explain it, though I know not if I am right in put-It is likely that at least some of your readers might have been confronted with a like experience, and I should be obliged for further reference on the subject through your esteemed columns

### A SURGICAL CURIOSITY

BY L BODLEY SCOTT, M.D.

CAPT, INS

I THINK the following is a sufficiently rare and interesting case to be placed on record

Saimullah, a youth, aged about 20, came to Sylhet hospital on October 1st, 1912, complaining of a sinus discharging urine in his right thigh and frequent and painful micturition

History—He states that about two years ago an abscess formed in his thigh and burst. The hole has ever since discharged pus and urine Lately he has had much pain in the region of the bladder and frequent desire to pass urine This is all the information that can be got from him

Present Condition—He is extremely weak, thin and anæmic, and has the appearance of being in continual pain. His urine is foul and contains pus. He has a small sinus opening at the apex of Scaipa's triangle on the front of the right thigh. A probe passes upwards along the sinus through the obturator foramen just behind the ascending ramus of the os pubis into the pelvis. Here it impinges on a stone. The length of the sinus is six or seven inches. A sound passed per urethram reveals the same stone lying in the bladder. Urine dribbles from the sinus.

Diagnosis — Doubtful There was certainly a stone in the bladder, but the urinary fistula taking such an unusual course could not be explained I suspected some extensive disease of the pelvis possibly tubercular

Operation—Wishing to explore and drain the very foul bladder I removed the stone by lateral lithotomy instead of doing the usual lithotopaxy. It was about  $1\frac{1}{2}$  by 1" in size and consisted of layers of phosphates. In the centre was a small piece of bamboo shoot about  $1\frac{1}{4}$  long and 3/16" thick, forming the nucleus. The inside of the bladder explored by the finger seemed to be a mass of fungating granulations coated with phosphates. This deposit was gently scraped away and the bladder well flushed out. The sinus was thoroughly scraped

Progress—The sinus in the thigh very soon healed and gave no further trouble. The perineal wound took a very long time to close, but the patient eventually left hospital 2½ months after the lithotomy in greatly improved health, passing clean urine per urethram and with the sinus and perineal wound both well healed

Further history—On careful questioning after the operation the patient said that he had fallen out of a tree and a piece of bamboo had penetrated his thigh—It was pulled out at the time and the wound first healed and then swelled up and formed the abscess

# Indian Medical Gazette.

### COMPETITION FOR THE I M S

On 2nd August was published a list of the successful competitors at the last examination for admission to the I M S, held in July 1913 Twelve vacancies were offered, and five of the candidates who won commissions, including, the A sixth candidate, the first three, were Indians minth of the list, though he has a British name, got part of his medical education at Madras The first man hails from the Punjab, the second and the sixth from Calcutta, the third and the ninth from Madias, the eighth from Bombay. The Indian Medical Schools may be congratulated on the success of men who got most of then medical All, of course, hold British training in India qualifications in addition to those gained in India; and all, presumably, have undergone a further course of professional study at home

This, of course, is not the first time that an Indian has headed the list of successful competi-Admission to the I M S was first thrown open to all duly qualified British subjects by the India Act of 1853; and at the first competitive examination held under this Act, in January, 1855, an Indian Suijo Coomai Chuckerbutty (Surjya Kumai Chakiavaiti, as the name would nowadays be written), passed first was one of the four Bengali students who were sent to England in 1848, under Surgeon Henry Hurry Goodeve, for a further course of medical study, after completing the Calcutta currentum He took the M R C S in 1848 and the M B and M D of London in 1849 and from 1850 to 1854 served in Bengal, in the Uncovenanted Medical Service In 1864 he was appointed Professor of Materia Medica in the Calcutta Medical College, and ev officeo second Physician to the Medical College Hospital, and held these posts until his death, on furlough in London, on 29th September 1874

Half a century elapsed before another Indian passed first, when P B Bharucha headed the list in August 1910 In August 1909 an Indian, V B Gokhale, had passed second

It is no cause for surprise that an Indian should stand first in this, or in any other, competitive examination. Indian students are by nature intelligent, they are also well capable of profiting by instruction, and they are certainly diligent. To

an Indian, it is much more important to gain a commission in the I M. S than it is to a British student, who has also the R. A. M C and the Navy open to him, if he wishes to go in for one of the public services. On the other hand, the number of Indian competitors is usually less than those from the home medical schools.

While it is no matter for wonder that an Indian should pass first, that the three first places should all be taken by Indians is something unprecedented. What is the cause which has brought about this result? It might be due to exceptional merit in the Indian candidates now successful, or it might be that the I M S offers less attraction to newly qualified men at home than it formerly did, or that, for any other cause, British candidates have fallen off in numbers, or in quality, or in both.

If the results of recent examinations for the I. M. S are compared with those of July 1913, we may do something towards getting an answer to the query above. If we take the last twelve exams six years—we find that on several occasions twelve vacancies have been given, as now, sometimes more, never less. The highest marks obtained by the first man, on those twelve occasions has been 4120, the lowest 3447. Only once, in January 1912, have the numbers been less than on the present occasion. The marks of the twelfth man have varied from 3554 to 2958, only once have they fallen below 3000, and never have they been so low as now Indeed once, in January 1908, the twelfth man had a higher total 3554, than the 3517 marks which were gained by the first man in July 1913

The marks for July 1913 and for the previous six years may be tabulated as follows —

Date.	Number of	Number of candi dates	Marks gained		
	vacan cies		First,	rwelfth	Last
July 1907 January 1908 July ,, January 1909 July ,, January 1910 July ,, January 1911 July ,, January 1912 July	14 16 20 12 21 13 15 14 12 12	33 58 47 32 48 34 36 26 28 38	4120 3988 3834 4016 3997 3629 3773 3691 3806 3147	29	3233 3483 3083 3168 3143 3074 3193 2914
January 1913 July ,,	12 12	28 33	3718 3707 3517	30	968 908 978

The number of candidates shewn is the number who sent in their names. The number who actually appear is always somewhat smaller, and the number who qualify somewhat smaller again

The number of candidates has varied from 58 to 26. In July 1913 there were 33, a number, a little larger than those entering for four out of the last five competitions. There was, therefore, no diminution in the number of candidates. But, if there was no falling off in numbers, the low marks scored appear to indicate a falling off in quality. What is the reason?

We may confidently assert that never before have the apparent conditions of service in the I M S. been so good as they now are detable improvements have been made of late Ten years ago, years, in pay, leave, and pension in 1903-04, a small lise of pay was given to almost all ranks. With respect to leave, the grant of study leave has enabled the I M S officer of the present day to refresh and extend his professional knowledge during leave given for that special purpose; whereas those of even fifteen years ago, if they wished to study in Europe, as most men did, had to spend for that purpose part of the furlough given, and required, for reciention and rest, and health. Incidentally, a man on study leave has the opportunity of accelerating his promotion to Major, with the increased pay of that rank, by six months. The grant of combined leave in 1901 enables him, if he has privilege leave due, to take the first part of his furlough on full pay counting as service, formerly it was the rule rather than the exception for men going on furlough, when they could get it, to have three months' privilege leave to their credit, and to forfert that privilege leave without advantage to themselves As regards pension, a few years ago the twenty-year pension was considerably increased, from £365 to £400 a year, and in 1911 a graduated scale of pensions was granted, rising by regular annual increments with every year's service, from 17 to 30 years, a boon which had long been desired, instead of the pensions obtainable only at four fixed stages, 17, 20 25, Promotion in some provinces has and 30 years nevel, within living memory, been so rapid as it is now, though probably intending candidates do not consider this point, important as it is to For rapid promotion men already in the service to the administrative ranks means a rapid rise, in appointments if not in actual rank, all down the list.

The prospects and conditions of general practice at home, on the other hand, have probably never been so poor as they now are, for the last halfcentury at least There is, of course, plenty of 100m at the top But that does not affect the newly qualified man, and will not do so for many years to come Most general practitioners, and such practitioners comprise the great majority of the profession, have suffered severely from the Insurance Act of 1912 The man who ran a club practice, and depended solely upon clubs for his living, has gained by the Act He has as many patients as before, possibly more, and the rate paid by each has markedly increased the man whose practice was made up, wholly or largely, of patients of the lower middle class. paying small fees, has been very hard hit by the His private patients are now State patients, paying no fees, but a fixed small annual payment. In many cases, moreover, under the new conditions they are not his patients, but those of another man

The R A M C and the medical department of the Navy seem to have no difficulty in attracting a supply of candidates, satisfactory both in quality and in quantity. The same applies to the medical service of the Crown colonies, even West Africa. where the conditions of service have greatly improved of late years, seems to get suitable men without difficulty But Indian candidates are not eligible for the Navy and Army, and very few have gone in for the Colonial Service For the I M S where they are eligible, they go in freely. The marks gained by the successful competitors at the last I M S examination But, if there had been no are lower than usual Indian candidates, the marks gained by the first man, the last, and by the intervening men, would have been very much lower than they actually are

The cause of the falling off in the quality and quantity of British candidates for the I M. S would appear, then, to be some cause connected with India, and with India only, as the competition for the other medical services is not effected by it

The cause, it appears to us, can only be a general dislike and mistrust of the conditions of service in India at the present time. This disminchination to accept service in India affects all the Indian services more or less. For many years past admission has been given, by one and the same examination, to the Home, Indian, and Colonial (Ceylon and Straits) Civil Services, and

for some years past it has been usual for the men at the top, to choose the Home rather than the Indian Service, to take a moderate certainty, a famly well paid clerkship, with some chance of better things in the future, rather than the I C S with its certainty of good pay, and its great In other words, the chances of advancement modern candidate plays for safety The cause of this comparatively new development in Butish youth, we can only suppose to be dislike of the present day policy of the Indian Govern-The unjest in India, the treatment of that uniest by the authorities, and the political developments of the present day, have made men hesitate before embarking on an Indian career. As regards the I M S. in spite of many improved conditions in recent years there are other causes Civil practice is not what it was, little money can be made in many stations, mofussil life is less attractive than it used to be, and discussions about the "Morley doctime" of limiting the service, the talk of "independent" practitioners who were to be quasi government servants, the great difficulty of getting leave, and the pay which with the present raised prices all over the world is not attractive These and other causes have, as was foreseen by many, affected recruiting in the schools causes are affecting and will affect other services in India, and it is one great task before the Royal Commission to devise means whereby the best men in the Empire are attracted to the Service of the Government of India \*

# THE INDIAN JOURNAL OF MEDICAL RESEARCH

We welcome the new Journal published under the auspices of the Indian Research Fund Association by Messis Thacker, Spink & Co It will replace that fine long list of publications known as "Scientific Memoirs" and also take the place of the little lamented "Paludism," whose feeble constitution never survived the early perils of infancy. The new Journal starts with a long and largely nominal Editorial Committee and we presume that the Secretary to the Sanitary Commissioner with the Government of India will be the actual Editor.

The Journal is priced low, 6/- per annum, for 4 quarterly numbers

The first volume is very handsomely got up and admirably illustrated and contains a long list of valuable articles, many of them however appealing most to research workers and specialists. A useful account is given in an introduction of the scope and aims of the Indian Research Fund Association. As this association has funds at its disposal (witness the liberal sums granted for special work in the various provinces), we may expect it to be of great good, and we are well pleased to find that the following important subjects have been or are to be taken up this year dysentery, relapsing fever, quinine, bacteriological examination of water, cholera sera, and gotte

Turning to the volume itself we need not refer to them all, as the wide distribution of the new Journal renders such unnecessary nonspecialist, ie, the practising physician and surgeon, the articles of most interest are Major Greig's papers, read at Madras, on cholera carriers, etc., Capt J. Cunuingham's useful resumé of the bacteriology of dysentery, which also shows the great need of his own deputation to clear up the subject of this protean and deadly disease, Lt-Col Donovan's paper on kala-azar and Capt Patton's on the same subject Gilchist's highly technical paper on the hæmolytic action of quinine is very important in view of the prevalence in certain districts of Blackwater fever, and Capts Acton and Knowles have a very useful paper on latent malaria

The Journal has begun well and very creditably reflects the amount of good research work now being done in the various laboratories in India

# Qurrent Topics.

# COLONEL CRAWFORD'S HISTORY OF THE IMS

We are glad to be able to announce that the long-looked forward to History of the Indian Medical Service, by Lt-Col D G Crawford, I.M s (1etd), is now in the press and may be expected to be published, by Messis. Thacker, Spink & Co., before the end of this year. It will be a big book, in two volumes, and with over 1,000 pages. The price will not be high as Lt-Col Crawford has generously decided that the price will be fixed so as just to cover the actual cost of publication. It will be illustrated, and among others will be a picture of the tomb of William Hamilton in St John's Church, Calcutta, and a copy of Lady

<sup>\*</sup>A correspondent writes as follows—"The I M S is not popular in the schools, a good 'Locum' can get a guinea a day, an Assistant £200 or 300 a year. This coupled with unrest in India is keeping men away from the service." He comments on the great number of Indian students of medicine now in England and hints at the exams being too easy, owing to so many rival corporations giving licenses, etc., to practise.

Butler's great picture, "The Remnant of an Army," commemorating the return of Dr Brydon to Jalalabad, which is now in the Tate Gallery The following list of the Chapters will give our readers a very clear idea of the vast amount of interesting matter in this book -

The First Beginnings

European Surgeons in the Service of Oriental Potentates

Surgeon-General John Woodall

4 Early History, the Islands, Amboyna

The Legend of Gabriel Boughton

- Early History; Surat, Persia, Bombay, and the West
  - Early History; Madras and the Coast Early History, Bengal and the Bay
- 9 William Hamilton and the Embassy to Dellu
  - 10 The First Half of the Eighteenth Century.

Holwell, and the Fall of Calcutta. 11

- 12 William Fullerton, and the Patna Massacie
  - 13 The Foundation of the Service
  - 14 Strength from time to time
  - 15 The Double Commissions.
  - 16 Military and Civil.
  - 17 Rank
  - 18. Pay
  - 19 Furlough and Leave
  - 20 Pensions
  - 21 The Funds
  - 22 Appointment to the Service Examinations.
  - 23. Administration, the Medical Boards
  - 24 The Sea Service
  - 25 Contracts and Trade
- The Minoi Medical Services, St. Helena, China, Prince of Wales Island, West Coast
- 27 The Uncovenanted and Subordinate Seivices
  - 28 Surgeons as Civil and Political Officers
- Other Extra Professional Work, Exploration, Science, Philology, Literature
  - 30 Medical Officers employed in England
  - 31 After Retirement
  - 32 Wai Services
  - 33 Honours and Rewards
  - 34Courts-Martial
  - 35 The First Half of the Nineteenth Century
  - The Mutiny 36.
  - 37 The Crown succeeds the Company
  - 38 1865 to 1896
  - 39 The New Combined of General Service
  - General Remarks 40
  - 41 The Future
  - 42Hospitals in India
  - 43 Medical Education in India
- Medical Societies and Medical Journalism 44 ın India

We need hardly say that it is the duty of every man in the Service to possess a copy of this great book and the mess of every Indian Regiment should also obtain it The book we know is intensely interesting, and we hope Lt-Col.

Crawford will reap the reward of his lifelong labours into the history of the Service he belonged to for 30 years

### LIBRARY OF KING GEORGE'S MEDICAL COLLEGE, LUCKNOW

MAJOR W. SFLBY, DSO, PROS, INS, the Principal of King George's Medical College, Lucknow, desires us to make it known that he is anxious to acquire back volumes of the Indian Medical Gazette, The Lancet, and the British Medical Journal, and asks medical men willing to dispose of such volumes to correspond with hım

### SERO DIAGNOSIS IN INDIA

WE here publish the first of a series of notes on the sero-diagnosis of syphilis in India from the pen of Lt-Col W D Sutherland, IMS., who, as is well known, is conducting a class in Calcutta on the biological blood tests. We think our readers will welcome these up to date notes on the newest methods of diagnosis -

I-ON THE 'ANTIGEN" BEST FITTED FOR USE

"THE Wassermann reaction can be made quite trust worthy in Calcutta if a suitable antigen be used Here there have been tried the following extracts -

- (1) Alcoholic Extract of fortal heart
- " buffalo's heart 11
- (2) (3) gumea-pig's heart fowl's heart ,, ,,
- (5) Noguchi's (acetone-insoluble) Extract of feetal heart
- (6) " buffalo's heart
- (7)" gumea pig's heart
- " fowl's (8)
- heart " Syphilitic (9)fœtal liver.

For the experiments the following precautions were taken, in order that the results might not be open to

At least three known non syphilitic and three known syphilitic sera were used as controls, and the antigens used were, in each experiment, three 1—An antigen (alcoholic or Noguchi) which in a previous experiment had been found to give trustworthy results, 2—another antigen, also known to give reliable results, 3—an antigen, the state of the stat gen whose value was not previously known, but was to be determined

The results of careful experiments have shown that, without exception, the Noguchi antigens cannot be relied upon here for any length of time They may give good results for two or even three weeks, but the best of them fail after a few tests. It does not seem to make any difference whether they are prepared from feetal heart or any other heart. The alcoholic antigens are also apt to fail one at a pinch, but, so far as we have been able to ascertain, they are not nearly so apt to do so as are the Noguchi antigens. The alcoholic extract of feetal heart, prepared as under, has been found to be far and away the best, and most such extracts have been proved to be efficient after many weeks one has done good work for months

The feetal heart, washed free from blood, and with the fat removed is weighed. It is then cut into small pieces and these are pounded into a paste with quartz sand in a mortar The paste is then mixed with ten times the heart's weight of absolute alcohol The mixture is thoroughly shaken for an hour, and then left to stand for 48 hours The clear supernatant fluid is then filtered through hard filter paper and stored in

When required 1 cc of the extract is added to 4 cc of physiological salt solution. Of the resulting slightly milky fluid 0.2 cc is added to the contents of the tubes, into each of which 075 cc of a 1 10 dilution of the patient's sera and the contiol sera\* are put
I am inclined to believe that, here at least, it is

essential to keep the alcoholic antigen away from the

light"

### THE DANGER OF RUBBER GLOVES

THE tollowing useful extract is taken from the Medl Review, Aug 1913, quoting from La Semaine It is worth noting by surgeons

"The more the methods of disinfection of the skin are practised, the more do they carry the conviction of their ultimate insufficiency. There can be no absolute sterilisation of the skin in the sense in which we speak of sterilised instruments or diessings. What happens in the most careful preparation of the skin of the patient of the hands of the suppose is the destruction. patient of the hands of the surgeon is the destruction and removal of a considerable number of organisms situated on of near the surface, while those buried in the glands escape in greater or less degree the process of disinfection, and after a variable interval they cmerge upon the prepared surface The use of rubber gloves promotes this result by the perspiration of the hands induced by covering them with an impermeable tissue Though the gloves may be perfectly sterile and the hands as carefully prepared as if the surgeon intended to operate without them, their use shortens the interval during which the skin remains relatively uncontaminated. Thus a tear or puncture of a glove during the operation may permit the escape of per spiration which may infect the wound. It is better, therefore, to operate without gloves than to employ those which are not perfectly wateright. This opinion has been questioned by Ahlfeld, who found, with but one exception, that the interior of gloves were sterile even after operations lasting 1 to 2½ hours. In these cases the hands of the surgeon were dipped in alcohol after preparation and then dried, while the gloves were also sterrlised dry

Hellendall and Fromme, investigating the question over a series of 90 major operations, found that the gloves of the surgeon contained liquid at the conclusion of the operation on 46 occasions, while those of the assistants were less frequently moist. This exudation was perceptible 20 minutes after the beginning of the operation, and varied in amount with the duration and complexity of the procedure, the temperature of the room, and the predisposition of the individual The quantity found sometimes amounted to several cc Cultures showed that this liquid contained 2, 3, even 10 times the number of organisms recoverable from the hand before putting on the glove, and in some cases more than the hand before preparation. The fewest organisms were found when the preparation of the hands included immersion in 70 per cent alcohol.

These researches point to the importance of removing rubber glove whenever a puncture or rent is discovered during an operation, the hand being again as carefully disinfected as at first. It has been suggested that wearing a thread glove over the rubber one lessens the risk of contamination, but this is not a sufficient sifeguard. While good rubber gloves sterilised dry, and applied after careful measuration of the hands. and applied after careful preparation of the bands, including the use of alcohol, are of unquestionable utility, it is better to dispense with gloves entirely

they are not only useless but than to use bad ones haimful"

## THE INTERNATIONAL MEDICAL CONGRESS

Most of our readers will here read with interest the admirable synopsis of the proceedings of the 17th International Medical Congress held in London as reported in the British Medical Journal of August 16th

It is satisfactory to see that I M S officers at home on leave and retired took their share Surgeon-General Sur Pardey the work Lukis was everywhere and his name appears in many sections of the work of the Congress Su Ronald Ross introduced the subject of sanitary organisation in the tropics Colonel W G King was to the fore, but his resolution concerning the supposed subordination of sanitary to medical authority was not approved of Colonel Harris, OSI, FROP, was present at many of the meetings Major Battye took part in the discussion on spinal analgesia Lt-Col R H. Elliot enjoyed a ventable triumph in the all-day discussion on glaucoma, and Lt-Col H Herbert took part in the same discussion Major Glen Liston discussed plague and fleas Capt Chambers read a paper on enteric fever in the Indian Army Major Rost gave demonstration on leprosy and Lt -Col Alcock on entomology The meeting was a memorable one, and we are glad to see medical officers from India were well to the fore

We find the following in the Ophthalmoscope (July 1913) —

"A Government Order has recently been promulgat ed, the effect of which will be that in future officers of the Indian Medical Service will be allowed to undergo a three months' course of training in ophthalmic work at the Government Ophthalmic Hospital, Madras, an in-stitution under the superintendentship of Col R H Elliot, I Ms Officers must be specially selected by the Surgeon General Not more than two officers from mufassil stations shall be in attendance at the same time So far as possible, junior officers of the Indian Medical Service stationed at Madras shall undergo a course of training at the Ophthalmic Hospital without prejudice to their other duties The Government also consider that selected Civil Assistant Surgeons should be given similar facilities for gaining a special knowledge of eye work. The Government of India, when the arrangements are complete, will be asked to sanction to all officers selected for ophthalmic training the same concessions as to pay and allowances as are now granted to officers deputed for malaria training, including 'halting allowance' for the entire period of training Surgeon-General W B Bannerman has taken a most prominent part in urging the reform now accomplished by the Government Order"

THE Servian Government made the munificent offer for British Surgeons in the recent war of pay, 600 francs a month, say, about 350 rupees per mensem We wonder how many they got '

THE Editor of The Hospital Assistant (Kolhipur City) has made a spirited appeal for more support being given to his well managed and

As most of my readers will have guessed, the patient's sera and the control sera are, when obtained, heated to 56° C for half an hour to destroy their complement

interesting journal. I M S Officers who know the good work done by so many Sub-Assistant Surgeons are naturally interested in the success of this journal, and contributions from Civil Surgeons are requested by the Editor. It would be a good plan for Civil Surgeons to encourage the Sub-Assistant Surgeons to take notes of interesting cases, many of which would be with advantage published in the columns of the Hospital Assistant.

OWING to the generous response to Mr Austin Chamberlain's appeal for money, the London School of Tropical Medicine has arranged to extend the scope of its work. The new buildings will be ready by 1st October, special laboratories have been fitted up

During next session a new course in tropical sanitation and hygiene will be instituted, special attention being given to bacteriology and hygiene

Abundant resident accommodation has also been provided for students and 20 new furnished rooms have been added. When will millionaires in India come forward to help the new Tropical School at Calcutta. Is everything to be left to Government? Is Medical Education not as worthy to be endowed as other faculties?

# Reviews.

Dysenteries, their differentiation and treat ment—By Lieutenant Colonel L. Rogers, CIE, MD, IMS 1913 Oxford Medical Publications

A GOOD book on the dysentenes has long been wanted, and we believe that this want will be well supplied by Lieutenant-Colonel Rogers' latest publication. It is a companion volume to his book on cholera

Lieutenant-Colonel Rogers' work on amobic dysentery and his wonderful discovery of the practical value of emetin are well known. In every medical journal testimony to the value of

emetin is being daily boine

The present volume will be much sought after by medical men in the tropics. Dysentery is after all the most efficiency and health destroying disease of the tropics and one the most rightly to be creaded for its invaliding after effects. For some years past the question of differentiation between the two great types of this disease, the bacillary and the amorbic has been much to the fore and the importance of the difference has been emphasised by the great value of emetin in amorbic and its uselessness in the bacillary form

To turn however to the book—after a very interesting historical chapter there is one on epidemiology and the connection between the monsoon and the rise in dysentery cases is shown for the various provinces of India. The chapter of amœbæ, harmful and harmless is good, the chapter on pathological anatomy and the clinical

description are both excellent. Many will turn with special interest to Chapter VI on the treatment of amoebic dysentery, where the emetin "ipecac," and other methods are described and illustrative cases given

It is well known that among Lieutenant-Colonel Rogers' many therapeutic triumphs his attack on liver abscess and its presuppurative state has been one of the most successful and Chapter VII which deals with the remote complications is of special interest and value. It is practically an up-to-date revision of a similar chapter in *Fevers in the Tropics*, and contains a most complete account of the whole subject of causation, incidence and curative and preventive treatment of hepatitis and liver abscess

The next four chapters are devoted to bacillary dysentery and must be said to be excellent, the pathological changes are admirably described, the clinical description is true and detailed, and the chapter on treatment practical and up-to-date, though even since this book went to press its indefatigable author has worked out another successful method in the use of albargin, about which we shall doubtless shortly hear more

The other dysenteries are discussed but are of minor importance, but the chapter on *Hill Diarrhea* and on *Sprue* will be read with interest

We have read this book with profit It is emphatically a good book, clear, concise and practical It is beautifully illustrated, we have never seen such admirable coloured illustrations of intestinal lesions are those given here from drawings of the author's cases in the Medical College, Calcutta The book is emphatically one to possess and use and the already high reputation of the author as a scientific therapeutist and physician will be further enhanced by its publication

The Poisonous Terrestrial Snakes of India and Ceylon — By Major F Wall, 1 M.S., C M.Z.S Bombay Natural History Society, 1913 Third Edition Price 3 rupees

WE gave a hearty welcome to this useful book on its first appearance and now gladly welcome its 3rd Edition. The book has been a very successful one, over 3,000 copies were sold of the first two editions.

Major Wall appeals in his preface for more information about bites by various snakes.

He writes as follows —

"To take examples, we have no single record of symptoms of the poisoning of the banded krait (Bungarus fasciatus), common as this snake is in Assam and Burmah Again, snakes so common as the black kraits (B lividus and niger) in Assam, as Callophis macclellandi in the Assam Hills and Eastern Himalayas, as the pit vipers Lachesis macrolems, anamallensis and strigatus in the Southern Indian Hills, and L trigonocephalus in Ceylon should furnish many records which would be received with appreciation by the author, or by the Secretary of the Bombay Natural History Society Any information, however meagre, is worth reporting, and may prove useful and even a badly mutilated snake is capable of identification in competent hands'

The book is divided into three parts, first, 68 pages on the identification of Indian land snakes, and secondly, 59 pages on snake bites, effects and symptoms and a third part of 17 pages on treatment. We commend the key to the study of identification to our readers for it is well known that colour and markings are of much less significance than the shape of scales, tails, etc. This method can be easily learned from the book before us. The illustrative cases quoted (several from these columns) are of great interest and many more such cases are needed and should be published.

The chapter on treatment is very useful and the author points out that antivenine is not the

only possible remedy

Under the head 'preventive treatment,' he refers to medicinal measures such as permanganate, chloride of lime, etc., but he does not put much faith in any of them. Among "mechanical" measures ligature is always recommended and is available, and Major Wall recalls Sir Joseph Fayrer's magnificent experimental work on this subject, but unfortunately Major Wall finds there is but little ground for the popular belief in the efficacy of ligature, even of elastic ligature, as advocated by his namesake Dr. A. J. Wall Excision is also of little use owing to the rapidity with which a lethal dose can be absorbed

As regarded antidotal treatment Major Wall agrees in the value of antivenine, but the antivenine prepared in India is only antidotal to the toxemias of the cobra and Russell's viper. The third line of treatment aims at combating the effects of the absorption of the venom. None of the usual vegetable remedies of popular report are of any value. Ammonia and strychnine have had their day and are known to be harmful as well as useless, and a stimulant like alcohol so often administered is even more harmful than even strychnine or ammonia.

Major Wall inclines to put taith in the use of calcium, especially if injected under the skin (10 to 15 grains of the chloride), we would like to see some definite experiments in support of this view

Advending owing to its powerful constructing action on the blood vessels may prove useful especially in colubrate poisonings, and the even more powerful effect of pituitin may be tried

We commend this chapter to our readers and we consider that a copy of this book should be kept at hand in every hospital in India. The subject is one of great interest to medical men in India and Major Wall is a recognised authority—which has been fittingly recognised by the bestowal on him of a Corresponding Membership of the Zoological Society—an honour which is rarely given

Dysentery in Jails - By Sub Assistant Surgeon K P KUMIRAMIN NAIR, Madias, 1913 Ananda Press

This is a useful and practical little book intended for use of Sub-Assistant Eurgeons posted to the Jul Department

We have read the pampulet with great interest and pleasure It is emmently practical writer is inclined to place considerable stress on the presence of ankylostomes as a predisposing cause The very high percentage of of dysentery persons slightly affected with this parasite is well known, but as we have often pointed out there is a vast difference between the presence of a mild affection which does little appreciable haim and an intense affection such as we read of in the accounts of the "hookwork campaigns," for example at Porto Rico a matter of quantity and it should never be forgotten that Lieutenant-Colonel Dobson, IMS (1etd.), showed the high percentage of healthy coolies, collected and the medically passed for Assam Tea Gardens, who were infected, but such mild infections do not mean or imply the existence of any condition worthy to be called ankylostomiasis

Our author, too, should have noted that the other alhed worm Necator Americanus is (at least in Bengal) almost as common as the A. duodenale

The distinction between amorbic dysentery and bacillary is very important, as it is absuid to waste emetin on bacillary cases, whereas it should certainly be used on amorbic cases and (pace certain writers), the clinical or even microscopical differentiation between the two is not easy

We are entirely in favour of the views held by Sub-Assistant Surgeon Nair on the great value in the prevention of dysentery of cleanliness of food, cooking and kitchen. There is no excuse in a jail for the kitchen not being as spick-and-span and tidy as a "man of war."

We recommend this useful little book to all medical subordinates in jail hospitals. It is well worth reading

Commonsense Breathing and Feeding— By Major K F E Austin (late R A M. C) Lahore Civil and Military Press

This little book written for the "intelligent layman" will be read with much interest by all who are like Hamlet "fat and scant of breath". The author Major Austin has made fasting fashionable in Simla and the report we recently published (I M G, Sept, p 369), of the meeting of the Punjab Branch of the B M A shows the views medical men are taking of the crusade

The book is divided into two parts, commonsense breathing, where the advice is sound, and commonsense feeding, which is chiefly devoted to the number of meals taken daily. He lays down that no full-grown adult needs more than two meals a day and he very wisely differentiates between true and false hunger. This is a most important point. Few of our readers have ever experienced and in ordinary his never do experience true hunger. The common feelings of 'sinking,' 'emptiness,' 'faintness,' etc., may be relieved by taking food but they are not 'hunger' but only manifestations of auto-intoxication or fermentation. "Stout-

ness is due to excess of tood, 'this obvious fact is sometimes overlooked and often not realised

Cut his giam" was the bluff advice given to the writer by a horsey Colonel apropos of the increasing stoutness of an officer in the regiment, and Major Austin's "two meals a day cure" amounts to exactly the same as every other dietetic advice and is summed up in one word "Moderation" Moderation is very difficult but all diet schemes come to that Two meals a day—one about noon to give the stomach a 16 or 18 hours rest from the evening s dinner at 6 or 8 PM This is Major Austin's rule of life, and he only asks us to try it

# The Hygienic Management of Labour in the Tropics—By Di P N GLERARD, Singapore, 1913. Methodist Publishing House

While this book lay on our table before we had time to open it we confess we thought it was one on midwifery, the 'Management of Labour' had a very obstetric sound, but it is not so, it is connected the health of coolies employed on the rubber and other estates in the F Malay States It is an excellent book of its kind, but it is difficult to say if it is meant for the employer of labour or for the medical officer At any late it is crammed full of useful information, and in fact is an up-to date manual of hygiene from the point of view of coolie labour on estates with data for house sites, drainage and subdrainage, water supplies, tests for water, catchment areas, river water, samitation of coolie lines and the chief diseases met with among labour coolies Two months regular taking of quinine (5 grains) daily is recommended to prevent relapses and Di Gerrard wisely sees that much malarial fever in individuals is due to neglect of thorough treatment and consequent relapses To "segregate all dysentery cases" is sound advice prophesies that ankylostome infection will soon become a scourge in the F M States as it is at Porto Rico unless precautions are taken in time Kala-azai is only met with in imported natives of India, elephantiasis is raie, and he defines sprue wisely and safely as "a chronic deterioration of the mucous membranes of unknown causation" As for Berr-berr he recognises that the millers of Siam now admit the danger of "polishing" lice and if so the matter should settle itself Yellow tever is described but fortunately it has not yet Blackwater fever appeared in the F M States has recently become prevalent or recognised

A large portion of this book is devoted to a reprint of the 1912 Labour Code, published by

the Government in Sept 1912

We can certainly recommend this book to medical men working in the planting districts of Bengal and Assam Managers and medical officers would be well advised to get the book

# The Australian Institute of Tropical Medicine. - Report for the year 1911

This report deals with helminthology, protozoology and arthropodology and contains a few

pages on keratosis and climatic bubo thology much work has been done on Onchoccrea gibsoni, the filaria which lies coiled up in subcutaneous nodules in Australian cattle, and over which there has been an outery in London The worm has been re-examined in respect to its anatomy, and experiment has shown that larve, indistinguishable from those of the worm in question can be found in small numbers in the skin overlying the nodules Transmission experiments with mosquitoes, stomoxys and leeches have proved negative and the question is still unsettled A number of new nematodes, cestodes, protozoa, mosquitoes and tabanids are described. In all cases the beautiful illustrations by Miss Gladys Roberts add immensely to the value of the volume, which is one that no worker in the various subjects indicated can afford to pass by

Clinical Surgical Diagnosis—By F. DE QUER-VAIN, Professor of Surgery, University of Basle Fourth Edition Translated into English by J SNOWMAN, M.D. John Bale Sons and Danielsson, Ltd 740 pp, 510 illustrations and 4 plates Price nett 25s

This book, which is the outcome of years of association with students as a teacher and with medical practitioners at consultations is intended as a guide in this vast field of surgical diagnosis It is arranged in six parts on a topographical plan, dealing with the surgical diseases of the neck, thorax, abdominal and viscera, pubes and spinal column, and extremities. The book represents, above all, the point of the author's experience, and is encyclopædic in character. Throughout the years of starting with the symptoms which caused the patient to such advice has been adhered to, and the consequent vividness of description is thus The illustrations, with few greatly enhanced exceptions derived from the author's own observations, are extraordinarily clear and good, and emphasize the teaching of the text in a most lucid It should prove an invaluable work mannei of reference to the busy practitioners and we commend it to our readers. The type is large and clear and there is a very complete appendix the publishers are to be congratulated on the production which will enhance their already high reputation for this class of work

### Anopheline Mosquitoes of Malaya — By C STRICKLAND, WA (Cantab) Kuala Lumpui, Govt Printing Office, 1913

"A KNOWLEDGE of the species is essential for the economical prevention of malaria." To do this needs expert knowledge, and the knowledge is available in the works of Theobald, James and Liston, but Mr Strickland has prepared this short key to the Malayan anophelines as he wisely understands that highly technical books on mosquitoes are over the heads of all laymen and most busy medical men

The method is simple and this little monograph

can be strongly recommended to workers

### SPECIAL ARTICLES

I

# TROPICAL MEDICINE AT THE GHENT EXHIBITION

By C A GILL, DPH (Eng.), DTM. & H (Eng.), CAPTAIN, IMS

It is probable that the person who said exhibitions were for amusement rather than instruction was not vorcing solely his individual opinion. And it must be admitted that few, except those possessed of unlimited leisure and a capacity for taking infinite pains, can hope to dojustice to the opportunities afforded them in the palatial pavilions of an Exhibition. Such being the case it behaves the ordinary mortal when he visits one of these institutions to exercise discretion and to choose for examination those things which seemeth to him good.

Applying this process of reasoning to a visit to the Ghent Exhibition few pavilions will be found more worthy of a visit to those whose lot is cast in pleasant—and unpleasant—places in the tropics, than that containing the British Government Exhibit bearing on tropical diseases. The layman hailing from the East cannot fail to derive much useful information from even a cursory inspection of this exhibit, whilst to the medical expert the whole section is of unusual interest, for it is probable that no such complete exhibit dealing with tropical diseases has ever before been collected under one roof

The motif of the exhibit is no doubt to indicate the great advances that have been made in our knowledge of tropical diseases during the past decennium, but it also, incidentally, serves to indicate, mainly as the result of the discoveries of one master-mind—Sir Patrick Manson—the premier position occupied by Great Britain in the realms of tropical medicine. A photograph of this great man—the Lister of Tropical Medicine—appropriately enough finds a place in the exhibition—and underneath it might well have been placed the words that have been applied to him in a dedication by one of his colleagues.

"First he wroghte, and afterward he taughte But in his teching discreet and benigne"

That the advances made in our knowledge of tropical medicine have not been barren of practical results is illustrated, for example, by a graph showing the death-rates and invaliding rates per 1,000 for the past ten years in British West Africa. The former, it appears, has declined from 20 6 in 1903 to 12 4 in 1912, whilst the invaliding rates during the same period have dropped from 65 1 to 28 2 per 1,000. Truly startling results Facts like these, which have their counterpart in other tropical countries, should cause those persons who adopt a despondent attitude towards sanitary science in the tropics to give themselves furiously to think. For figures such as those quoted above show that preventive medicine is not merely a fetish which it is meet to bow

the knee to—like the latest craze in dancing—but it is, if properly understood and applied, a living reality which is able to effect a great saving in human lives—and to add vastly to the sum of human happiness

That sanitally science is not always taken selfously is illustrated by the story of the distinguished civil servant of the Crown, now retired, who was once heard to dispute with his expert adviser the significance to be attached to the results obtained by a chemical bacteriological analysis of a drinking water, C'est magnifique, mais ce n'est pas la guerre

With this digression it is now proposed to deal briefly with some of the exhibits illustrating the pathology of the more common tropical diseases

The subject of Malaria, as might be anticipated, is dealt with fully. Large models of
an anopheline and culicine mosquito accurately
display the external anatomy of these insects,
and even a child would quickly learn to discern
from their respective attitudes whilst at rest how
the malaria carrying anopheline may be distinguished from the harmless culicine. Other
preparations illustrate the character of their
larvæ. But perhaps the most striking exhibit
under this head is a beautiful series of way
models showing the development of the malarial
parasite both in the red blood corpuscles of man
and in the tissues of the mosquito.

Of classical interest, too, is Sir Ronald Ross's manuscript in which he first described the development of proteosoma in birds and thus by analogy established the life-cycle of the malarial parasite

Anti-malarial measures are displayed by means of photographs, diagrams and models. Quinine prophylaxis, screening, dramage and segregation of Europeans all come in for notice. In regard to screening some cabins arranged on the "Yarrow System" are shown. They appear, though small, to be of undoubted efficiency, but the feeling to which they give rise of being "cabined, cribbed and confined" would probably cause the occupant during a tropical night to prefer the attentions of mosquitoes to the doubtful luxury of a sleep in such restricted quarters.

A small but important point appears to have been overlooked in connexion with some mosquito curtains, they are made to reach only to the level of the bedstead, whilst it is essential that they should be long enough to enable them to be tucked in all round under the mattress. Another interesting exhibit is a model of a native village before and after it has been improved in accordance with modern hygienic principles

It all looks so simple 'A general cleansing of the village, the levelling of the bed of a water-course, the protection of a well or two and a few holes knocked in the walls of the diminutive houses. One feels almost compelled to ask, if these simple measures are all that is required to produce results so beneficent to the human race, why are they not more frequently applied? Or to quote the historic query of the late King Edward,

used in reference to diseases associated with insanitary conditions, "If preventible why not prevented?"

Alas, if man and his belongings were only half as easy to deal with as his Liliputian prototypes in wax and clay the lot of the sanitarian in the

tropics would indeed be a happy one

The exhibit bearing on plaque is of more particular interest to the Anglo-Indian since it deals largely with the disease in India work of the Plague Research Commission, with which the names of the late Major G Lamb. IMS, and Major Glen Liston, CIE, IMS, are so honourably associated, comes in for full notice In this connexion, it may be mentioned, there is on view an exact copy of the cages used by the Commission in one of the experiments by means of which they succeeded in establishing the truth of the int-flea theory of the spread of plague will be recollected that rats were placed in cages similar in all respects except that in one set the rats were surrounded with a liver of "tanglefoot " When these cages were placed in plague infected houses it was found that in no instance did the ints surrounded by "tangle-foot" (across which fleas were unable to jump) contract the disease, whilst in the cages in which the rats were not so protected the animal became infected in 24 per cent of cases

The various fleas concerned in the spread of plague are exhibited under microscopes whilst stuffed specimens of plague-iats and animals known to be concerned in the spread of this disease are also shown Amongst the latter may be mentioned a fine specimen of the Taibigan (Arctomys bobac) the animal which achieved an uneviable notoriety as the supposed cause of the great epidemic of pneumonic plague in Manchura In connexion with anti-plague measures the process by means of which plague vaccine is prepared at the Bombay Bacteriological Laboratory is fully illustrated, as well as the procedure of anti-plague inoculation in vogue amongst plague

medical officers in Indian villages

An ominous silence is observed towards other anti-plague measures, such as rat destruction and disinfection, which perhaps suggests that in the opinion of those responsible for this exhibit these measures, though of undoubted utility in certain circumstances, in the present state of our knowledge and with the present means at our disposal, are not considered suitable for general applica-On the other hand, models of the Sanitary Chawls in Bombay and the improvements effected therein, under the auspices of the Bombay Improvement Trust, indicate that attention to General Sanitation is not to be neglected in systematic efforts to eradicate plague and it might be added cholera, tuberculosis, dysentery and many other diseases

Another exhibit which appears to indicate both our present impotence in the face of plague epidemics and the manner in which one Government endeavours to discharge -more or less vicariously

-its duty to its plugue-stricken populace is that which illustrates the working of the peripatetic civil dispensaries now in operation in certain provinces of India

Trypanosomiasis and Sleeping Sickness, the latter being merely the terminal stage of the former, is accorded a prominent position owing no doubt to its great and increasing importance as a cause of mortality in our African colonies

The protozoal parasite, Trypanosoma gambiense,—the cause of the disease is shown by means of a beautiful wax model, the work of M1 A S E Fe1s1 Another model by the same artist illustrates the characteristic rash of trypanosomiasis fever as seen in an European. As in the case of malaria the 'carrier' of the disease is exhibited both by means of large models as well as by actual specimens of the insects concerned—Glossina palpalis and G morsitans

The 'reservoir' of the disease, ie, the means by which infection of the fly is kept up even in the absence of man, comprises a formidable group of animals, specimens of which are lent by the British Museum It will suffice to mention the kada, water-hog, harte-beest, various species of antelopes, the spotted hyæna and the baboon In these animals, unfortunately for man, the parasite causes no ill-effects so that they may continue to spread the disease for the full term of then natural lives. It is for this reason that a somewhat melancholy interest attaches to them, for the question of their wholesale destruction is at present under consideration

Let us fervently hope that in any case of uncertainty the animals will be given the benefit of the doubt Until recently, it was thought that there was only one species of trypanosome and one 'carrier' concerned in human pathology, but recent research, tends to show that there are other species of human trypanosomes and, moreover, that there are other 'carriers' of the disease

besides the dieaded tse-tse flies

The exhibit devoted to Beri-beri is not particularly illuminating since it consists chiefly of various samples of rice, both 'polished' and 'unpolished,' together with samples of the all important 'vitamine'—derived from the pericarp

of this food giain

Pellagia is not illustrated, but one imagines that if it had been, even a year ago, the exhibit would have consisted chiefly of samples of maire in various stages of deterioration many similarities between pellagra and beri-beriand one of them was, until lately, the fact that the one was supposed to be induced by maire and In the case of pellagia the the other by rice maize theory was held in spite of the fact that there was no correlation between the distribution of maize eating races and the endemic areas of pellagia, this probably on the principle that if the facts did not fit the theory so much the worse for the facts Bearing in mind the history of pellagia one is tempted to inquire if there is a strict correlation between the endemic areas of

beri-bern and the geographical distribution of those races whose sole article of diet is 'polished'

Enteric fever, though not strictly or even chiefly a tropical disease, is included in the exhibit probably with a view of demonstrating its marked decrease in prevalence during recent years in the British Army in India. We are reminded that this excellent state of affairs is largely the result of increased attention to sanitation in Indian Cantonments combined with the persistent advocacy of that form of prophylactic inoculation with which the honoured name of Sir William Leishman is so closely associated

Some diagrams, particularly interesting to the Anglo-Indian, illustrate the manner in which the germs of enteric fever may gain access to the food of man as the result of the ignorance or carelessness of the Indian servant combined with the neglect, on the part of his master, of the elementary principles of domestic hygiene

But dust, flies and dust are also frequently responsible for the spread of cholera and dysentery If these three and malaria—all preventable diseases—could be removed from the category of common tropical diseases—such places as Calcutta and the Gold Coast would be in a fair way of becoming health resorts

Under the head of cholera the seal of official recognition is placed upon Leonard Rogers' method of the treatment of cholera by means of hypertonic saline infusions. Another exhibit appears to show that in the disinfection of wells with potassium permanganate, it is necessary to add a sufficient quantity of the salt to render the water permanently of a bright pink colour. As ordinarily practised in India this method of disinfecting wells cannot, therefore, be described as thoroughly reliable

Kala-azar—and Oriental—or as it is better termed tropical-sore are dealt with under the title of Leishmaniasis Cimer notundatus is exhibited as the suspected 'carrier' of the former, and comer lectularius of tropical sore, though on what grounds the latter insect is suspected is not clear Recent research tends to show that the infantile form of Kala-azar, prevalent along the Mediterranean littoral, as well as the form found in the Sudan, are closely allied to Indian kala-azai In these cucumstances a photograph taken in Tunis showing a child and a dog both suffering from infantile kala-azar is suggestive The 'carrier' in this case is believed to have been the dog-flea, Ctenocephalus servati-Dogs have not been found to suffer from kala-azar in India, but in view of the very definite occurrence of canine kala-azai in Tunis and other places the expediency of fresh search being made amongst the domestic animals of India appears to be indicated

Anlylostomasis—The hook-worm disease of America so named from the bend made by the head of the worm on its body—is illustrated by means of models and specimens of the Anly-

lostomum duodenale and its cousin Necator
Americanus

The manner in which the disease is usually spread, as the result of crude or defective sanitary arrangements is well shown by means of a section through a primitive earth latime preparations, pathological specimens, photographs and dingrams indicate both the widespread nature of this disease in the tropics and its direct and indirect influence as a cause of mortality Under the heading Filariasis the pathological lesions due to Filaria Bancrofti, Filaria Medinensis, and Filaria Loa are illustrated together with the life-history of these nematode worms In connexion with the first a series of photographs illustrates the well-known condition of elephan-In addition specimens of the various species of mosquitoes by means of which thisdisease is transmitted are on view, together with some drawings made from actual specimens showing how the filarial embyros develop in the thoracic muscles of the mosquito and finally make then way to its proboscis in readiness to enter the human host

The life-history of F Medinensis is illustrated by means of a model showing the adult worm 'presenting' in the centre of a superficial ulcer on the human foot. The model is extremely natural, though perhaps the worm appears a trifle stouter than is usually the case.

Specimens of the intermediate host of this worm—certain species of the genus Cyclops—in the body of which the parasite must undergo development before infection of man is possible, are also shown together with a preparation in which two larval guinea-worms may actually be seen inside the body of the little crustacean. Filaria Loa, the worm which causes in West Africa the ephemeral tumours called "Calabar swellings" is also shown in its adult stage. Its life-history has not yet been completely worked out but its 'carriers'—long suspected—have quite recently been proved by Dr. R. T. Leiper to be two gad-flies—Chrysops Sitacea and Chrysops Dimidiata

It is characteristic of the care and thoroughness with which this whole exhibit has been prepared (chiefly, it is understood, by the London and Liverpool Schools of Tropical Medicine) that specimens of these insects are exhibited in their appropriate place

In conclusion, it may be said that two main impressions emerge as the result of even a cursory glance at the wonders of tropical medicine, as exemplified at this Exhibition.

In the first place, it emphasises to an extent not perhaps appreciated formerly the paramount importance of a knowledge of natural history and natural science in the study of tropical medicine. Incidentally one comes to realise the wonderful complexity of Nature and to see that if to man belongs the first place in the universe he nevertheless serves to provide the proper environment and pabulum for a whole

host of beings who occupy a very humble position in the scheme of Nature Secondly, the lesson which this exhibit more particularly teaches is that if the tropics be here to many evils unknown in cooler climes these can be mitigated or prevented by measures more or less simple, and, for the most part, within the reach of all The situation may be well summed up-and this article concluded-by Tennyson's words -

> " Follow light and do the right For man can half control his doom "

#### II

#### DENGUE

THE following admirable account of much discussed Dengue is taken from a summary Harald Seidelin in the Yellow Fever Bureau Bulletin (Vol 11, 4th April 1913) this is an up-to-date description of this widespread disease we think it well worth to reproduce liberal extracts from it for the benefit of our readers -

Synonyms \*-Dengue fever, dandy fever, broken

wing, break-bone fever, break-heart fever

The word dengue means, in Spanish, affectation, and corresponds thus very well to many of the other names which have, in various languages, been given to the The natural explanation of the term seems, therefore, to be that it has been introduced into other languages from Spanish, which transition would very easily have taken place, considering that Spain was the first country in Europe in which dengue was observed

Definition.—Dengue is an acute febrile disease of short duration and of comparatively being character, produc ed by a parasite which is probably an inhabitant of the blood, and transmitted from one individual to another

by a mosquito
This definition is vague, and does not sufficiently characterize the disease, neither scientifically nor for practical purposes. It is, in fact, at the present time imposssible to determine exactly the morbid entity which really corresponds to the name of dengue Several diseases are, in one or several particulars, so similar to dengue that it is a matter of serious discussion whether they are closely related to it or even identical with it. The two diseases which have in later years occupied the most prominent position in this discussion fever and sevenday fever. Some nie pappataci twenty years ago, when pappatact fever was practically unknown in the scientific world, and seven day fever had not yet been described, a similar discussion took place with regard to influenza and dengue But Leichtenstein, and others, pointed out the essential differences between these two diseases, and at the present time it is generally admitted that they are totally differ ent The discovery of specific micro organisms (Bacillus influence, Micrococcus catar, halis) has contributed to make a sharper definition of influenza possible

With regard to pappataci fever, it would likewise appear that the question has now been finally solved in favour of its separation from dengue. The pathogenic parasite is unknown ir both diseases, or, at any rate, unknown in the case of pappataci fever and not known with certainty in that of dengue, but it seems well established that they are transmitted by different insects. The transmission of pappataci fever by sand-flies is considered proved beyond doubt, and the theory of transmission of dengue by mosquitoes is supported by very good evidence, although it has not yet met with universal recognition

The most important question which at the present time has to be discussed in connection with the nature of dengue is that of its possible identity with the so called seven day fever described by Rogers This disease is endemic in Calcutta, and is considered by Rogers to be essentially different from dengue, but a number of other authors, writing subsequently to the appearance of Rogers' description, maintain that it is simply an endemic form of dengue As the pathogenic micro organism is not known with certainty in any of the two diseases, and as the mode of transmission has not been fully investigated in seven day fever, the discussion has to deal chiefly with the clinical and epidemiological Rogers has compiled the following table in characters : order to show the differences between dengue and seven day fever

	Dengui	SEVEN DAY PEVER
Prevalence	At long intervals in epidemic form attacking a large proportion of residents	Annually in spota die form
Distribution	Specially attacks coast towns, but spreads far inland	Only known near the coast, so far
Race incidence	Europeans and natives equally attacked	Very common in Europeans, com paratively rare in natives
Seasonal inci dence	Mostly in hot months, but may prevail in cold serson (1872)	Prevails in hot and rainy seasons only
Relapses	Very common in same year as first attack	Raie, and not in same year as first attack
Pains	Very severe and break bone in character	Moderately severe, as in influence, and not of break bone character
Joint symp	Very common and characteristic	Absent, or only present as slight pain
Convalescence.	Very tedrous, lasting one to three months, with persistent joint pains	Rapid No after joint prins
Fevei	Lasts two or three days, falling to normal with crisis Occasionally very short secondary rise Markedly remittent	Five to eight of more days with typical saddle back remission to 100° to 90°F, only Otherwise continued in type
Pulse	Rapid	Slow, especially in terminal rise
	· ·	

It is, however, very difficult to bring diagnostic rules in accordance with this table. If we attempt to apply the characters of the table to recently described outbreaks of dengue, the results will be found to be self contradictory. In some cases Rogers would probably say that the disease in question may not have been dengue at all, but seven day fever, as he has done in the case of the description by Ashbarn and Craig of dengue in the Philippine Islands But even admitting this possibility, the difficulty has not been solved, it will be found that the disease, is described recently by various outlooks council be brought under any of the two head authors, cannot be brought under any of the two head ings in Rogers' table

The epidemic in Calcutta in 1912 has been described by Hossack and by Smith, both authors believe in the identity of dengue and seven day fever, but differ con

<sup>\*</sup> Chiefly after van der Burg Das Dengue-Fieber, in Mense's 'Handbuch der Tropenkranheiten,' Vol II

siderably from each other in the descriptions of the symptoms This lack of accord may be taken to show that the clinical picture varies considerably, in this as in most other diseases The fever lasted frequently only three days, according to Hossack, but in Smith's experience its usual duration was five to seven days, and a typical saddle-back type of the temperature curve was of common occurrence. The pulse rate was low, according to Hossack. In Smith's cases, pains (articular?) were a prominent feature. Both authors are strongly of opinion that the disease was dengue, but it must be admitted that it shows perhaps even more resemblance to seven day fever, according to the symptoms

If we consider senatim the characters said by Rogers to be of importance for the distinction of seven-day fever from dengue, ne will find that the specific value of nearly every one of them has been disputed by one or several

authors

The prevalence is said to be epidemic in dengue, long intervals intervening between two epidemics, seven day fever is described as endemic. This is contradicted by various Indian authors, who maintain that the two diseases are identical, and especially by Hossack, who points out that it is well known from other infections that a disease may well be at home endemically in a certain locality, and nevertheless occasionally burst forward in epidemic outbreaks Fooks believes that three day fever and seven-day fever which he considers identical with dengue, occur both endemically and epidemically in the Punjab

The distribution is said by Rogers to be different, seven day fever occurring only in coast towns, but dengue also inlard He does not, however, lay much stress on this point, stating that seven day fever is 'only known near coast, so far' Later on he mentions, however, that he has received typical seven-day fever charts from cases observed in the Punjab It would appear that several inland outbreaks-for instance, the one in Jerusalem, and that described from Nowsbera, by Wimberley-show more resemblance in the clinical symptoms to seven day fever than to dengue also be recalled that dengue was by Hirsch and Leichtenstern, and other earlier authors, regarded as a disease of the sea coasts and river banks, just as jellow fever

Race immunity cannot be considered an absolute characteristic of seven day fever Race immunity Race immunity means practically, as far as it is known from the studies on malana, Jellow fever, and other tropical diseases, immunity acquired through unrecognized infections Also in dengue has race-immunity—absolute or relative—been mentioned by Stitt and by Vassal On the other hand, Munro reports a considerable number of cases closely corresponding to Rogers' seven day fever type in natives of India

Seasonal prevalence 19, so far, perhaps more pronounced in seven day fever than in dengue, but also the latter disease is frequently said to become extinct spontaneously in autumn or early winter According to Clayton, however, no such thing as seasonal prevalence would appear to exist in seven day fever, outbreaks having been observed both in summer, autumn, winter and spring

Relapses are, according to many authors, not uncommon in dengue, with regard to seven-day fever, Megan has suffered from this disease twice with a year's interval That relapses should be very common in the same year as first attick, in dengue, is denied by

The pains are said by Rogers to be very severe, and of 'break bone' chriacter in dengue, but moderate in soven day fever Severe pains, of course, belong to the classical picture of dengue, but in recent descriptions puns are often said to be moderate Thus Masterman gives it as a symptom of diagnostic value that the pains are less severe in dengue than in influenza

Joint symptoms are, according to Rogers, common and characteristic in dengue. In most modern descriptions

it is pointed out that the so called articular pains in dengue are, as a matter of fact, usually juxta articular, being localized either to muscles of to tendinous insertions, and stress is laid upon the absence of other signs of affection of the joints, such as swelling, etc

Convalescence is usually prolonged in dengue, but

even this is not a constant feature

The duration of the fever in dengue is by Leichteustern stated to three days, but he, as well as other observers, describes a secondary rise, not always very short More stress is laid upon the constant occurrence of this secondary rise in recent observations and the fever is even by some authors described as lasting about a week with a more or less deed remission In fact, some of the temperature charts published from dengue cases are almost identical with typical charts from Rogers' sevenday fiver

The pulse is usually described as rapid in dengue, but slow pulse rates have been observed in dengue, both in India, Australia, the Philippine Islands, and Cuba

Thus, seven day fever cannot be differentiated from dengue by any single pathognomonic symptom, and a com parative study of records of the two discases shows overlapping of the symptoms to an extent which seems very suggestive of their identity

McCarrison's three day fever seems, according to the observations of Megaw and of Fooks, to be intimately related to seven-day fever, and thus probably also to

Another disease which mist be particularly referred to in this discussion is the six day fever which Deeks has observed in Panama He is inclined to believe that this fever is identical with Rogers' disease, and his description fully supports this view. Thus, to discuss the possible relationship of this disease to dengue would be a repetition of the preceding remarks Deeks is of opinion that six day fever is distinct from dengue

Geographical distribution - Dengue is, and has always been, limited to tropical and sub tropical countries, with occasional invasions of the temperate zones in exceptionally hot summers Inside these limits it is decidedly cosmopolitan The southern European countries, tropical and sub tropical parts of Asia, Australia, North and South America, and East and West Africa, all have been visited by more or less extensive outbreaks of dengue

In the case of dengue it is impossible to distinguish with any degree of certainty between endemic areas and areas of epidemic occurrence, as is so readily done in yellow fever. Mild forms of dengue do not attract the attention of the public, nor of medical men, as long as they do not become unduly common, and spotadic cases are probably overlooked in many places If seven day fever is identical with dengue, then the principal endemic foci are evidently Calcutta and other parts of India

Dengue was by earlier authors regarded as a disease exclusively of the coast cities, but it is now known to occur even far inland

Leichtenstern states that dengue exceptionally, in a particularly hot summer, occurred in the Lebanon up till about 4,500 feet above sea level, but otherwise it is undoubtedly a disease of the lowlands, higher lying places being protected by their cooler climate. places being protected by their cooler climate. McCarrison has observed in Chitial three day fever, which with some degree of probability may be con sidered a form of dengue, at an altitude of about 6,500 ft The absence of dengue from higher altitudes corresponds to its absence from the temperate zones

Etiology -The pathogenic organism of dengue is not known with certainty As early as 1873 and 1886, blood inhabiting organisms were described by Cunningham and Charles, and by Laughlin, respectively Later on, Graham, in 1902 and 1903, and Eberle, in 1904, have described intracorpuscular and free elements in the blood, which they regarded as parasites observations were confirmed by Ardati in 1910. According to these two authors the parasites are fairly large, motile, unpigmented (Giaham), or slightly pigmented

(Aidati), not stainable (Graham), or not intensely staining (Ardati)

Ashburn and Craig also experimented with Culer fati gans, but leave the question open whether other mosquitæs might as well serve as transmitters. These investigators experimented, as far as it can be gathered from their report, at Fort McKinley, which was heavily infected at that time

It is unquestionable that Graham first established the mosquito transmission theory in dengue, and supported it by very good evidence. It is unfortunate that the account of his experiments is somewhat summary, but it appears that in the last two experiments sufficient safeguards were taken against the possibility of casual infec tion. In fact, it would appear that he proved his theory as far as absolute proof is obtainable in such matters. It is, however, remarkable how little attention has been paid to Giaham's work, even in the literature from recent y ears

Graham is of opinion that the dengue parasite under goes a development in the mosquito, and states that he has produced infection by injecting an emulsion of salivary glands of a mosquito infected twenty seven days He gives no details with regard to the previously intervening period in the transmission experiments, but evidently believes the evolution to be of very short dura tion, as he describes 'spores' in the salivary glands of mosquitæs forty-eight hours after the infecting bite Ashbuin and Craig are inclined to the belief that the transmission is a purely mechanical act, if the parasite should undergo an evolution in the body of the mosquito it must be a very short one, as the intervening period in their one positive experiment was only of two days'

The distribution of dengue would correspond well to the universal prevalence of C fatigans in warmer countries, but equally well to that of Stegomyra fasciata, and it has been suggested by Legendre that the latter mosquito might be the most important carrier in dengue

Epidemiology and general pathology - Most of the questions belonging to this section have already been discussed under the foregoing headings. The life habits discussed under the foregoing headings of C fatigans explain the seasonal prevalence of dengue, as well as its geographical distribution, and also the observation which has been reported by various authors that infection seems to take place chiefly or exclusively during the night

The explosive character of epidemic outbreaks which has always been regarded as a peculial feature of dengue, is not exactly what we would expect in an insect boine disease, but it might be explained, where mosquitoes are abundant, if the transmission is of a mechanical nature Many epidemics have been remarkably extensive, almost the whole population of a town being attacked

The peculiar way of spreading from barrack to barrack, which has been described by Ashburn and Craig in the case of the Fort McKinley outbreak, would correspond well to transmission by insects

Nothing definite is known about the infective period of the blood in dengue By some authors the later period of the disease is considered the most dangerous with regard to transmission

Considering the lack of knowledge of the parasite, and also of the anatomical lesions, it is only natural that nothing is known with regard to the mechanism of the production of the symptoms

Immunity - Some authors are of opinion that an attack of dengue leaves little or no immunity, whilst others speak of a well-established and more or less persistent immunity Repeated attacks during one and the same outbreak have often been reported, on the other hand, there seems to be reliable evidence which shows that one attack has protected an individual, both during the same and later outbreaks, even for many

Pathological lesions -No specific lesions have been described Uncomplicated cases are apparently never

fatal

Incubation -- According to chinical observation the length of the incubation period varies from a few hours to several weeks Pulle gives, from the observation of a sharply circumscribed outbreak, 10 hours as a minimum and 39 days as a maximum period of incubation. The Brisbane report gives apparently reliable data from several cases, in a few the incubation period seems to have been less than 48 hours and in one case less than 24 hours, on the other hand, in one case it must have been at least three days In Graham's experiments the incubation was from three to six days, and in those of Ashburn and Craig it varied between two and five dips, the average being three days and fourteen hours

Symptomatology - Considerable variation is observed, with regard to the individual symptoms, during one and the same outbreak and, even more, when comparing different epidemics

Most authorities describe a sudden onset, often with a chill or 11go1, but a more gradual beginning is also observed, either in isolated cases, or in certain out breaks. Prodromal symptoms are not common, but in some cases headache and general malaise piecede the actual declaration of the illness by several hours or a whole day One experimental case, published by Ashburn and Craig, is of considerable interest, the patient had a rise of temperature before he complained of any symptom

There is always fever from the beginning, but the first symptom which attracts the attention of the patient is often pain, which may be so intense and sudden that the patient is interrupted in his work and unable to This 'diamatic' onset, which appears to have been not uncommon in some earlier epidemics, is, however, rarely mentioned by recent authors. The pain may start in any part of the body, usually in one of the extremities, but it soon spreads and febrile symptoms soon develop

The temperature rises quickly to about 39°C (102°F), but may use considerably higher, already in this period The fever remains more or less continuous, or with slight morning remissions, for one, two or three days, then the temperature usually falls to normal, or nearly so, and becomes stationary for two or three days A secondary use takes place on the fourth, fifth, or sixth day, this phase of the fever lasting for one or several days, or only for a few hours, secondary fever of more than a few days' duration is probably a sign of some complication of other. In some cases the unit al fever is higher than the secondary one, in other cases the inverse condition is observed. Hyperpyrexia has been observed, exceeding 42°C (108 109°F')

This recuirent form probably represents the typical fever in dengue, but great variations occur may last a few days only, on the other hand, it may be continuous, or more or less remittent for a week, the so called 'saddle-back' type, with initial and secondary fever of about the same height and duration, and a fairly deep intervening remission, is not uncommon Short fevers are easily explained as abortive forms, which may occur in any infection, but the more continuous forms cannot be fully explained, as long as the pathological physiology of dengue is so imperfectly understood. The fall of the temperature generally takes the form of a lysis, but a sudden, critical drop may occur, accompanied by profuse sweating

The pulse is variously described, a somewhat low pulse rate is probably the rule

Other febrile symptoms are often pronounced, such as headache, congestion of the face, and uneasiness. The headache is often orbital, and increased by movements of the eyeballs

Muscular pains are very common, and so are pains which are commonly referred to as articular, but most secent observers are agreed that these pains are usually juxta articular, being localized either in the adjoining muscles of in tendinous insertions Exudation and other objective signs of inflammation of joints are decidedly rare, and muscular swellings have apparently

The pains, whether muscular, tendino periosteal, or not been described articular, may occur in any part of the body is probably constant, and one or more of the extremities are usually affected. The pains are often extremely severe, partially or completely immobilizing the patient

Cutaneous phenomena are common and important Ar initial rash is usually observed, but has apparently been absent, not only in single cases but in several out breaks. It is most frequently described as a diffuse hyperæma, but is sometimes said to be measles like. It is visible especially on the face and outcomes. It is visible especially on the face and extremities It soon fades and is probably often overlooked. At the time of the secondary rise of temperature a papular, scarlatiniform of measles-like rash appears, which is accompanied by itching and followed by desquamation More exceptionally it presents the characters of an urticarial eruption, and in very rare cases it may be The rash is very irregularly hæmorrhagic, purpura-like distributed, and may be limited to small, circumscribed It remains visible for one or two days Desquamation may be very scanty, but also occasionally as pronounced as in well characterized cases of scarlatina Cutaneous hyperæsthesia is seen in some cases, especially during convalescence

The circulatory system is not severely affected

The blood shows little alteration, except in the leucocyte count A slight, or well-pronounced, leuco penia is the rule and, perhaps, a constant character The respiratory apparatus is but little affected

The digestive tract is always affected, but seldom The tongue is coated with a whitish fui, but tip and edges often 1emain red, and in many cases the tongue cleans itself later on in the disease is constant, and vomiting not uncommon, epigastic pain is often observed, and abdominal pain may occur even simulating appendicitis

The course of an attack of dengue is often divided into periods initial fever, intermittent stage, secondary fever, stage of desquamation, and convalescence It must, however, be remembered that these stages are by no means always well defined, and that one or more may be entirely missing

The most typical attacks usually occur in vigorous adults, whilst mild and atypical cases are often seen in

children Mortality -In most outbreaks the mortality has been ery low Various reports give mortalities of 1 out very low of 4,000, 7,000, or 10,000 cases, and in several epidemics no fatal cases are recorded. But in a few outbreaks higher mortalities have been observed, as 4 per 1,000 or

even up till 10 or 20 per 1000 Most fatal cases have occurred in children, or in old or weakly individuals. It seems probable that dengue is never fatal per se, complications have generally been found to be responsible for the fatal issue

### ANNUAL REPORTS

### HOSPITALS, PUNJAB

This report was submitted by Colonel Bamber, ulo, ins, the Inspector-General We make the following extracts

In the Government Resolution on the report the following occurs -

" A striking proof of the growing utility of the dispen saries is that while the population of the province has not increased since 1901, the number of operations performed in 1912 is 56 per cent higher than the iverage of the three years ending 1901. The death-rate was 22 as compared with an average for those years of 17. Last year the rate was 18. The slight rise may

possibly indicate an increasing readiness to place des

perate cases in the hands of our surgeons

Lt Col Smith, Civil Surgeon of Amiltear, and Sub Assistant Surgeon Mathia Das of Moga, again head the lists in regard to operations The former has the lists in regard to operations performed a greater number of operations than the seven officers who stand next to him put together"

### "OPERATIONS

"During the year 251,865 operations were performed against 233,637 in 1911 Of these the selected opera tions numbered 33,430 against 25,817 in the previous year or an increase of 7,613. The total deaths after operations were 554, giving a death rate of 22 per cent

"The selected operations include 14,874 for the ertrac tion of the lens, of which 14,012 were successful, giving a percentage of good vision of 942, stone in the urmary bladder accounted for 2,245 with 79 deaths, amputations 534 with 34 deaths, hernia 376 with 14 deaths, liver abscess 84 with 18 deaths, abdominal section 126 with 24 deaths, ovariotomies 64 with 9 deaths, Cresarean section 27 with 9 deaths, prostatectomy 67 with 11 deaths, removal of the vermiform appendix 17, with no death, operations on the gall-bladder and kidney 9 and 12 with no death and 2 deaths, respectively

"The largest number of operations were performed at the Amritsar Civil Hospital and the Moga Hospital (6,934 at the former and 6,933 at the latter), the other institutions showing a large amount of operative work are given below in the order of the amount of work done -Victoria Memorial Hospital, Jullandur, the Mayo Hospital, Lahere, Rawalpindi, Rupar, Delhi, Karnal, Gurgaon, Ambala and Sialkot Civil Hospitals and Jalalpur Jattan Mission Hospital For crtaract operations Moga again leads with 2,900, followed by Amitsai with 1,731, Jullundur with 1,508 and Guigaon with 1,306. The largest number of operations for stone in the bladder was again performed by Senior Assistant Surgeon Ram

Narayan, Civil Hospital, Multan
"The Commissioned Medical Officers who performed the largest number of selected operations are -(1) Lieutenant-Colonel H Smith, v Hs, 1 Ms, 2,664, (2) Major E S Peck, 1 Ms, 606 in 3\frac{3}{4} months, (3) Lieuten ant Colonel E V Hugo, 1 Ms, 485, (4) Major J G G Swan, 1 M s , 358 , (5) Lieutenant Colonel A Coleman, Dwan, 1 M S, 500, (b) Lieutenant Colonel A Coleman, 1 M S, 292, (6) Major M Corry, 1 M S, 267, (7) Major H Amsworth, 1 M S, 243, (8) Captain S H Lee Abbott, 1 M S, 214 The Missionary doctors who performed a large number of operations are —(1) Di Taylor of Jalalpui Jattan, 587, (2) Di Newton of Jalalpui Jattan, 320, (3) Miss Mayi White of Sialkot, 299. The Civil Assistant Surgeons who distinguished themselves Civil Assistant Surgeons who distinguished themselves ın surgıcal work are -(1) Khan Sahib Mir Dewan Alı, 1,510, (2) Bhai Amrik Singh, 856, (3) Munshi Nazu Husain, 636, (4) Lala Sri Ram, 629, (5) Lala Baij Nath, 549, and (6) Munshi Muhammad Din, 433 Sub-Assistant Surgeon Mathia Das has once again disting uished himself in surgical work, and performed no less than 3,245 selected operations The other Sub-Assistant Surgeons who deserve mention are -(1) Pandit Nand Lal 646, (2) Pandit Asa Ram, 419, (3) Munshi Allah Bukhsh, 288, and (4) Lala Pala Ram, 264"

The following extracts is of interest .—

"The system of charging fees to all who can afford to pay has not been introduced everywhere, as it has not gained general approval The system has been more successful in the Ferozepore district, and though a falling off in attendance occurred at first, this is no longer the case Where the Sub Assistant Surgeon in a dispensary is very popular the patients pay fees readily. At Moga dispensary the cost of medicines and dressings are almost entirely defrayed by the patients"

Statement 9, in these reports is always of interest, we will quote only few of the figures for the more important operations There were 2,383 operations for tumouis, 38 lightures of arteries, over 7,000 operations on bones over 1,800 on joints, numerous amputations, 48 sclerotomies 1,783 artificial pupils 1,206 indectomies 14,874 cataracts, 431 for masalpolypus, a long list of abdominal operations including 14 sutures of intestines, 13 enterectomies, 33 for intestinal obstruction, 59 various operations for appendix trouble, 84 for abscess of liver, 25 for hydatic cyst, 374 herma operations, 12 operations on the kidneys The stone operations were litholography 2,059, lithotisty 29, lithotomy 168, showing litholography as the operation of election with experts. Numerous ovarian and uterine operations were also done. The report is a fine record of flist class surgery

### PUNJAB, SANITARY

The Sanitary Report for 1912 is submitted by Lieutenant-Colonel S Browning Smith, DPH, I.M.S., Officiating Sanitary Commissioner The following interesting note is taken from the Government Resolution on this Report —

"These figures seem to show that the Punjab in a favourable year is healthier than several European countries, though it still falls a long way behind the most advanced. One of the problems before the province is the elimination of the epidemic. It is that which is the disturbing factor in our death rates, and which may send up a rate of 26 in one year with a bound to nearly 50 in the next. But there is much to be done too in the general amelioration of the sanitary conditions of life. Measures undertaken with this end in view will not only reduce the frequency and the virulence of epidemics, but will also bring the death rate for a healthy year much below the present figure of 26. It is little more than a generation since the passing of the Public Health Act of 1875 in England. It was followed 15 years later by the Housing of the Working Classes Act. In 1878 the death rate was 21.1. It has steadily declined since then till in 1911 it stood at 14.8.

"There are signs that the leaders of the people are beginning to awake to the possibilities of hygienic ad vance, but it is not only by directing their gaze west wards that we can encourage their dawning interest"

There was a considerable amount of cholera but it was not a bad year. It is a pity that the simple measure of disinfecting wells still excites the ignorant hostility of the people, as at Hasan Abdul, etc.

The small-pox epidemic of the previous year attained its maximum in July 1912. It is to be noted that inoculators were at work in several districts, thus materially fostering the spread of the disease. The Tara Devi inspection system caught 16 cases of small-pox which otherwise might well have infected Simla. Major C. E. Southon, IMS, submits the report on plague. The year 1912 was a mild plague year. We quote the following useful notes from Major Southon's report.

### "SEASONAL VARIATION

"This was typical of an ordinary mild plague year Starting with 1,000 deaths in January, each succeeding month multiplied the previous one's number by two till the end of April In the following two months there was a rapid fall The death rate fell in these two

months to about the same level that it had obtuined in the previous January. During the months of July, August and September it lay dormant but still never quite dead and in the last three months of the year the epidemic gave signs of renewing strength, only requiring favourable conditions to burst into vigorous and virulent life. Most fortunately these were absent, the winter rains were delayed and when they did come the tempera ture was too low to allow of those warm humid conditions which we associated with a severe plague season.

### "MEASURES ADOPTED

"Evacuation — In certain districts where conditions are favourable this measure is freely adopted as in Shahpur, Ambala and Jhang In most of the other districts it is only when plague is well established and taking a heavy toll that the people will move out of their villages That the measure is an efficacious one they acknowledge, but in ordinary years they prefer to run the risk of infection to undergoing the expense and trouble of a move Of 1,500 villages infected 61 were

completely and 189 partially evacuated

"Rat destruction—This was not attempted on the large scale of former years Trapping with as many traps as were available was chiefly confined to those villages which were infected during the quiescent period or late in the previous season in the endeavour to stamp out the first beginnings of plague. In practice, how ever, it was not while the rat mortality was in progress, but only after human cases, in the plural number had occurred, that information was brought to the plague staff. Thus this measure did not have the chance it otherwise might have had though much good work was done in cutting short epidemics. Many cases are recorded by the plagues staff of the discovery of rat mortality in villages near those in which human cases were occurring, where prompt trapping saved the spread of the disease to man

"In certain selected towns and villages trapping was carried on throughout the year, especially was this the case in the Amritsai and Hoshiarpur districts. In several of these plague made its appearance, but in such a mild way as to suggest that much good had been done by keeping down the level of the lat population. Another method of rat destruction which has been tried in an experimental way is that by means of the smoke stove. Smoke is generated in a cylinder, using straw or any other cheap substance which will produce acrid smoke, and this is forced down rat holes by means of bellows. Exit holes are closed and lats are quickly suffocated. Sulphul is also sometimes added to the straw and the fumes produced cause very lapid death not only of the rat, but also of the fleas on it

"From our present knowledge it would appear that this method is very suitable to towns, especially those which are well built and where the rat population is to be found on the floor level and under it. It is not quite so efficacious in thatched or tiled villages where rats live on the roof level. At the same time it would appear from certain experiments that the smoking of a village on one occasion, that is one or two days' work, is equivalent in result to the trapping of that village for one month. A combination of the two methods would

certainly prove of great value

"The advantages of this method are that it is cheap, rapid, kills both the flea and the rat, and moreover the rat has no say in the matter, and most important of all it offends no religious prejudice. The disadvantages are that very careful and rehable supervision is needed and

it is not so adaptable to villages

"Inoculations — The number of inoculations performed was 51,570, which is only about half of the number done in the previous year, but when it is considered how mild a year it has been the number is very good. The attitude towards inoculation is slowly but surely changing from one of fear and distrust to acknowledgment of its usefulness, but yet only to be resorted to when plague has asserted itself with no uncertain hand

"Solar disinfection -This simple measure of exposure to the sun's rays for an hour of the clothing and belongings of a traveller from a plague infected village to another, by which means all fleas are destroyed, have been made known by word of mouth and by leaflet throughout the Punjab Moreover, convenient sites were selected and cleared for the convenience of both seves and suitable arrangements were made for the privacy of females Such sites were usually on roads near the entrances of villages Those villages were chosen which were in the neighbourhood of infected ones "The right of refusal of access to travellers from an

infected area, if they refused to undergo solar disinfection, was carefully explained to the people. This right was seldom taken advantage of, but the idea is in its infancy, and when it gradually grows familiar, more use will be made of it. Even as it is, evidences are not wanting that an increasing number of villages are be-coming alive to the value of this right and are taking advantage of it Villages in the neighbourhood of an infected one were always warned of the danger they ran in admitting any person from such a plague stricken spot

#### "STAFF

"The staff consisted of, in the earlier part of the year, 12 Commissioned Medical Officers, 1 Uncovenanted Medical Officer, 20 Civil Assistant Surgeons, and 20 Sub-Assistant Surgeons.

#### "FEVERS

"Like the year 1911 the year 1912 was one remarkable for a low degree of 'fever' prevalence"

## Coppespondence

### A NOTE IN FRONTIER SORES

To the Editor of "THE INDIAN MEDICAL GAZETTE"

Sir.-Frontier Soies are chi onic ulcers and are usually said to be Oriental Sores and are entered as such in many hospitals.
This is not really the cases as they are not due to the Leish

man Donovan body but are due to a mived infection a micro coccus along with a small stoutish bacillus

Out of 15 cases examined microscopically only one revealed the Leishman Donovan body, the others above noted mixed

infection

The soies resemble the "Tropical Ulcer" described by Castellani. This is the case at any rate in the Derijat Dis trict

> Yours, etc. A H NAPIER, CAPT, IMS

### CASE OF SNAKE BITE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

Sin -The following case of snake bite successfully treated

Sir —The following case of snake bite successfully treated with Permanganate of Potash and Ligature may be of interest at the present time, when there is some difference of opinion as to the chicacy of this method of treatment. A woman in the Dufferin Hospital here was sleeping on a low "chaipar" on the regard hand by a krait which was killed immediately after and subsequently identified by me. For tunately the Female Hospital Assistant was within hail, and in less than 5 minutes had incised the wound, tubbed in Potassium Permanganate crystals, and applied two ligatures, one at the root of the finger and another on the wrist. The accident occurred at night and the ligatures were not removed till morning, the patient in the meanwhile suffering a good deal of local pain, but no general symptoms. After the ligatures were removed no further symptoms occurred, and worse than a sloughing wound of the finger.

Of course it is impossible to say what might or might not have been the sequel if no treatment had been given, but with that this specimen was a lusty krait 3 ft. 7 inches long, the facts inference is that the result would have been serious, if not fatal.

Much credit is due to Miss Ventura, the Female Hospital Assistant at the Dufferin Hospital, for her prompt action, which averted a probable tragedy

Yours truly, C H REINHOLD, CAPTAIN, IMS

BIINOR, U P, August 6th, 1913

### DEVIL DRIVING

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—That in Muffasil places, evil spirits still play an important role in some of the diseases, will be evident from the following two cases. In the dark and obscure villages, some diseases especially the nervous maladies are identified with the actions of evil spirits, and the symptoms of both low and violent deliriums are considered by the villagers to be the plays of devils only. Various methods of treat low and violent dehriums are considered by the villagers to be the plays of devils only. Various methods of treat ment are in vogue, and at times, resorted to, when a man has the ill luck to be possessed by a devil. If a man get seriously ill just after fishing at night, he is supposed to be possessed by a water devil, which goes by the name of Barshval and when after keeping night watch over a cornfield, he falls a prey to Godam a cow devil. There is a superstitious belief among the rustic in the grim reality of man devils of different caste and creed, horse devils, buffalo devils, etc. Patients possessed of these devils are often times put to to tures of a serious type. Sometimes often times put to toltures of a serious type Sometimes often times put to tollures of a serious type. Sometimes red hot from needles and fishing hooks are applied to all over the body, and the patients are tied hand and foot, and struck with worn out and cast off shoes, and broom sticks. The patients, i.e., the devils inside them, labouring under this barb trous method of treatment, cry aloud in agony for help and to the top of their voice, often in nasal twang, and secret the alleges the all fated where the page of the page of the standard where the stand help and to the top of them voice, often in masal twing, and constrained to leave the ill fated subjects. The Rojas, of the mystic physicians consider these tortunes, inflicted not on the affected patients, but on the devils that get an access to the inside of their corporal being. Hence the cry for help and entreaties for mercy are not paid any heed to, and the inhuman treatment is often times suffered to be continued till the victims shew signs of prostration. The crude notions with their attendant evils are predominant in the villages not far off the centre of culture, and Government Charles he Institutions and Hospitals. ment Charitable Institutions and Hospitals

Two curious cases of preventive measures are worth coording. Year before last winter, cholera broke out in i ecoi ding an epidemic form at Belgatchi, a village mostly inhabited by Withomedan cultivators, Iving close by the Railway Station of Chuadanga on E B S Ry The headmen of the village belonging both to the old and new schools just on the outbreak, thought it prudent to have recourse to a prophylactic measure by hiring the services of a Mollah of the priestly class, presumed to have supernatural powers. This Mollah class, presumed to have supernatural powers. This Mollan after performing some necessary preliminaries, promised to drive the cholera devil from the village within a week's time. The remineration being fixed at Rs. 2 per diem, exclusive of food. The bold and enterprising managive of the physician for the stipulated period, commenced from nightfall till day break. He took a heavy club, and began to strike the jungles and other rank regetations as vigorously as could be imagined, with the yells, and loud and halsh civ. of a monster, going round the outslitte of the vigorously as could be imagined, with the yells, and loud and haish cry of a monster, going round the outskirts of the village for times without number all the night through This energetic method failed and the epidemic took a more violent type, carrying off 5 or 6 persons daily. The elders of the village put the Mollah to task by calling for an explanation. In reply the grant defender of health very graphically described to the headmen, and the illiterate mob. the cause of his not heary successful in combettion. mob, the cause of his not being successful in combatting with the obstinate devil of choler: He made the headmen clearly understand the plain truth, that he had worked very hard for days together in diving the devil of cholera from their village and his strenuous efforts were almost successful, but on his word, as he as playing the made was played the made was devil cossful. but on his word, as he explained the mischievous devil, as soon as he was tuined out of the village, took a winding and circuitous found, and ie enter the cursed place. The simple hearted and the illiterate mass with the headmen believed the story, and made arrangements for securing the services of another Mollah to work with the present one, solely for standing in the way of the circuitous rounds or movements of the devil The Mollah left the village on the very day, in quest of a competent assistant but did not return again.

In quest of a competent assistant but did not return again A more curious instance of driving away the devil of malaria from an old village of some importance mostly inhabited by merchants and tradesmen about a mile and a half off the Chuadanga sub division, in Nadia During and after rains, the place in question along with its environments becomes a hotbed of malaria, and in spite of medical help at hand, a half educated headman of the village with

his associates took it into his head, quite a novel and more his associates took it into his head, quite a novel and more polished procedure for driving away the devil of malaria. They lost no time in purchasing a pair of donkeys at a very high price, with the superstitious belief, that the neigh ag of these animals would do away with the evil spirits of malaria, from their village. The animas have since been being taken good care of for the last two years and a half and they have multiplied their number by two young ones. They make ravages on rice and corn fields, and damage at times other crops, they find in their way. If these animals have the change amanually the cattle nounds, they are They make ravages on nice and corn fields, and damage at times other crops, they find in their way. If these animals are, by chance, impounded in the cattle pounds, they are released, without any fine being imposed, through the undue influence of their masters. These animals are held as peculiarly sacred by the so called village elders, as a power ful scare crow, at whose unpleasant and ear piercing neighing the devil of malaria gets frightened, leaves the located area, and takes refuge in the woods near by. It is needless to add that to the utter disappointment of the wise folks, the annual visitation of malaria is as virulent in type as in years gone by years gone by

P O RUMIRDHA, (NADIA),
The 13th August 1913

Yours, etc. K P BAGCHI Medical Practitioner

[We think the above graphic description of devil driving well worth publishing It illustrates one of the difficulties of the Sanitary Officer in India —ED , IMG]

### THERAPEUTIC NOTICES

### INTERNATIONAL CONGRESS OF MEDICINE

At the International Congress of Medicine, which was held in London during the first week of August, Messrs A Wulfing & Co, were awarded the Grand Prix for their well known tonic food, Sanatogen It is a significant fact that an international jury of leading medical men should have singled out this preparation for the highest possible award, and the makers are to be heartly congratulated on their

### "SKIN HYGIENE IN SUMMER"

Heinz Giaf publishes in the "Hamburger General Anzelger" of May 25th, 1913, some interesting points. The author writes as follows in reference to the treat-

ment of the scalp
"It is beneficial for the ham of the head, that the evapora "It is beneficial for the hair of the head, that the evaporation of the sweat should not be prevented by an impenetrable headcovering. The exposed uncovered head has several advantages and conveniences. Regular washing of the head is good for the hair. Tai preparations, such as Anthrasol, etc., are to be recommended for hair washes. The best remedy for dandruff is the application of fatty substances to the head. I have myself obtained marvellous results from using than small later containing. Fixed Knell. The posteron a han spirit lotion containing Euresol Knoll The persistent nritation has disappeared after two or three applications

#### LITERARY INTELLIGENCE

An important new work is about to be published entitled "Researches on Rheumatism" by Dr. F. J. Poynton and Dr Alexander Paine From the preface we cull the fol

lowing extract "We have collected in this volume the chief papers bear ing upon a research on the subject of theumatism which has extended over a period of fifteen years. In so doing we are extended over, a period of fitteen years. In so doing we are well aware that few have the time to spend over reading the details of such investigations, but should the essentials of this research be eventually established, we feel that this book will stand as a landmark in the history of rheumatism in this country. Some of these papers were written before we demonstrated what we believe to be the exciting cause of that the disease, others elucidate the nature and action of that cause, others, again extending the main thesis, deal with allied conditions. At the conclusion of the volume the bearing of these investigations upon clinical medicine and public balls accordingly of the second colors.

ing of these investigations upon clinical medicine and public health is considered in a special article."

The work, which is to contain 106 black and white plates and a frontispiece in colour, will be published by Messrs J & A Churchill, of 7 Great Marlborough Street W

The same firm has nearly ready—the 11th Edition of Swaynes "Obstetric Aphorisms," which is now edited by Dr W C Swayne Professor of Obstetrics in the University of Bristol, also the 7th Edition of "The Microtomists Vade Mecum" by Mi A B Lee the 6th Edition of the late Professor Campbell Brown's "Practical Chemistry," Edited by Dr Bengough and the 3rd Edition of "A Text Book of Physics" Edited by A Wilmer Duff

# Sqrvice Notes

It is peilings not sufficiently appreciated how dead the "Morley Doctrine" has already become It was a short sighted and impracticable order, and we are glad to see it rapid disappearance. During the current year the Secretary of State has sanctioned 6 new I MS appointments, reconsular Surgeon at Mohamemiah, the Professorship of Pathology, Bombay, the Deputy Sanitary Commissioner, N. W. Frontier, Deputy Sanitary Commissioners, Burma and Bengal, and Health Officer, Delhi, moreover the Dechappointment which disappeared with the agency has been revived as a military appointment

The following table is of interest, in regard the chances of promotion in the 3 old Presidential Services, I M S  $\,-\,$ 

Proportion	of {	Suign Genls (to Lt Cols & Majs of Cols   the old establishments
Bengal	11	Selected Lt Cols 21 Lt Cols & Majors 118
Madias	5	1 12 6 or 8 per cent Selected Lt Cols 11 Lt Cols & Majors 34
Bombay	4	Selected Lt Cols 9 Lt Cols, & Majors 20
		1 7 25 of 13 7 per cent
		Proportion of selected Lt Col
Bengal	21	Other ranks 118
Madias	11	Other ranks 34
Bombay	9	Other ranks 1 3 or 33 per cent 20 1 2 2 or 45 per cent

BRIGADE SURGEON JOHN LAW, I MS, 1 ettied, has given a sum of £1,000 to endow a bed in the Dieadnought (Sermen's) Hospital at Greenwich, it was opened on 7th August Di Law has been connected with the Seamen's hospital for over half a century, since 1857 He entered the Madras Medical Service as Assistant Surgeon on 28th May 1858, became Surgeon on 28th May 1870, and Surgeon Major on 1st July 1873, jetuing with a step of honorial rank on 1st February 1873, returng with a step of honorary rank on 1st February

LIEUTENANT COLONEL MACKINTOSH ALENANDER THOMAS COLLIF, of the Bombry Medical Service, retired on 30th June 1913. He was born on 2nd July 1856, educated at Aberdeen, where he took the M B C M in 1881, after previously getting the L R C S, and L R C P, at Edin brigh in 1878, and entered the I M S as Surgeon on 31st March 1883 becoming Surgeon Major on 31st March 1895, Lieutenant Colonel on 31st March 1903, and reaching the selected list on 11th January 1909. After a few years passed in regimental duty, he became Secretary to the Surgeon General, Bombay, in 1888 got a professorship in the Grant Medical College in 1892, held various Civil Surgeonices from 1895 to 1903, when he was appointed a Presidency Surgeon, and became Physician to St. George's Hospital in November 1905, holding that post till his retirement. The Army List assigns him no war service.

Surgeon Colonel Simuel Bradshaw Hunt, Madras Medical Service retired, died at Limerick on 24th July 1913. He was educated in Dublin, took the L R C S I and L R O P Ed in 1864, and entered the I M S as Assistant Surgeon on 1st April 1865, one of the first batch who came in after the service had been closed from 1860 to 1865. He became Surgeon on 1st July 1873, Surgeon Major on 1st April 1877. Brigade Surgeon on 26th August 1886, and Surgeon Colonel on 1st Maich 1893 retining on 1st March 1898. His first ten years were spent in regimental duty, chiefly in the 7th M N I on 9th December 1876, he was appointed Surgeon to the Body Guard, and held that billet for sixteen years, till his promotion in 1893. During this time, he was twice in fur lough 1878. 79 and in 1890. 91, and in 1892 served as Medical officer of Coonoor while from 1884 on the first of Surgeon of the third district of Madras was combined with the very

light duties of the Body Gund In the administrative girde he served as P M O first of the Rangoon district, later of the Bangalore and Southern district, and in 1895 acted as P M O of the Madras Command, with temporary rank as Surgeon General The Army List assigns him no war service

A Medical Poet Laureate —Not very long ago we recorded the appointment for the first time of a medical man, Sir Thomas Crosby, as Lord Mayor of London Now for the first

Thomas Crospy, as Lord Mayor of London Now for the first time a medical man has been appointed Poet Lameate, Dr Robert Bridges, who was gazetted to that post on 16th July 1913, in place of the late Sir Alfred Austin

Though Dr Robert Bridges is the first medical Poet Lameate he is not the first medical man to make his mark in poetry Oliver Goldsmith was M D of Padua Even greater than Goldsmith, John Keats was also a doctor Goldsmith, however, has a special interest for the LMS and people. however, has a special interest for the I MS, as he nearly became a member of our service. In 1758 he received an appointment from the East Indian Company, as surgeon to a factory in the Coromandal Coast, subject to passing an examination at the College of Surgeons He was examined on 21st December 1758 at Surgeons Hall, for a certificate of his fatness for the post of Surgeon's mate, and in spite of his M D degree, was rejected

MAJOR A M JUKES, MD, IMS, is confirmed in his appointment as Deputy Sanitary Commissioner, Burdwan and Presidency Cucles, with effect from the 27th March 1913

LIEUTENANT COLONEL G G GIFFORD, CSI, IMS, 18 due out from short leave on 31d October 1913

LIEUTEVANT COLONEL R H ELLIOT, FRCS, 18 due out on 18th November

LIEUTENANT COLONFL R K MITTER, IMS, was granted 133 months' leave and is not due out till middle of Septem

Major W J Niblock, I us, is due out in Madias on 8th December

MAJOR A MILLER, IMS, acted as President Board of Examiners, Medical College, Madras, and was acting Princip il

CAPTAIN R D WILLCOCKS, I M  $\epsilon$ , has applied for  $\epsilon$  months' extension of study leave

CONSEQUENT on the redistribution of the changes of the Presidency Surgeons whereby the number of Presidency Surgeons is reduced from three to two, the Governor of Bombay in Council is pleased to make the following appointments—

Appointments —
Lieutenant Colonel T Jackson, M. R. B. Ch. (R. U.I.), I.M.S., to be Surgeon Superintendent of St. George's Hospital
Lieutenant-Colonel S. H. Burnett, M.B., C.M. (Abdn.), I.M.S., to be Presidency Surgeon, First District Physician on the staff at St. George's Hospital, Marine Surgeon and in medical charge of the Elphinstone College
Lieutenant Colonel J. Crimmin, V.C., C.B., C.I.E., D.P.H. (Ito.), I.M.S. (on leave), to be Presidency Surgeon, Second District, and in medical charge of the Common Prison, House of Correction and By culla Schools

Major G E Stewart, w. B. Frcs (E), Ims. to act as Presidency Surgeon, Second District, with attached duties, in addition to his own duties as Superintendent of Mahaba leshvar, rice Lieutenant Colonel J Crimmin, on leave

Consequent on the appointment of a full time Professor of Anatomy at the Grant Medical College, the Governor in Council is pleased to make the following appointments—Lieutenant Colonel A Street, as (Cantab), from I will be senior Surgeon, J J Hospital, and Professor of Officer, J Hospital, and to be, pending further orders, Surger, Grant Medical College, to act as senior Medical cubstantive protein Principal, Grant Medical College, Major T S Novis, from Principal, Grant Medical College, J J Hospital and Professor of Clinical and Operative Major J H McDonald, ME CM (Edin), IMS, has an extension of furlough on medical certificate for India months.

His I xcellence the Governor of Bombay in Council is pleased to appoint Major V B Bennett, wr. Bs (Lond), it is, I ws, to be a Civil Surgeon of the first class

His Excellency the Governor of Bombay in Council is pleased to appoint Captain B B Paymaster, I Ms, to be Personal Assistant to the Surgeon General with the Govern ment of Bombay

CAPTAIN J H HORNE, IMS, got 3 months' privilege leave up to 26th September, 1913

LIEUTENANT COLONEL W R CLARKE, I M S , has gone to Juliundai as Civil Surgeon

LIEUTENANT COIONEL D M DAVIDSON, I MS, has gone to Lahore as Civil Surgeon, after a stay of ten years as Civil Surgeon of Delhi

CAPTAIN I M MACRAE, I M S, Superintendent of Central and District Juls, Agra, is granted privilege leave for one month, with effect from the 1st September 1913, or subsequent date

Major A W Overbeck Wright, Ims, Superintendent of Lunatic Asylum, Agia, to hold executive and medical charge of the Central and District Jails, Agra, in addition to his own duties, during the absence on privilege leave of Captain I M Macrae, I M S

FIRST CLASS Military Assistant Surgeon A A E Baptist, Officiating Civil Surgeon of the Santal Parganas, is appoint ed to be a Civil Surgeon of the second class with effect from the 1st April 1912 He will continue to be stationed at Dumka until further orders

THE Secretary of State has sanctioned an exchange between Captain B Coatts, RAMC, and Captain A W Howlett, тив

Captain Howlett entered the service on 27th July 1907 and has recently acted as Superintendent of the Central Prison at Bareilly

LIEUTENANT COLONEL H E BANATVALA, INS, at present officiating as Inspector General of Civil Hospitals, Central Provinces, is appointed, with effect from the date he assumes charge of his duties, to officiate as Inspector General of Civil Hospitals and Prisons and Sanitary Commissioner, Assum, during the absence on leave of Colonel R N Campbell, CB, CIE, IMS, or until further orders Major E C MacLeod, IMS, is appointed, with effect from the 2nd August 1913, to officiate as Inspector General of Civil Hospitals and Prisons and Sanitary Commissioner, Assum pending assumption of charge of that office by Liente Captain Colonel H E Banatvala, IMS LIEUTENANT COLONEL H E

CAPTAIN C H CROSS, I MS. is appointed to be a proba-tioner in the Chemical Examiner's Depaitment, and is attached to the Chemical Examiner's Laboratory at Madias

SIR ARTHUR M BRANFOOT, KCIE, late I M S, on lettlement from the India Office, is granted the honolary rank of Surgeon General from 16th July 1913

LAEUTENANT COLONEL W H OGILVIF, MB, IMS, Health Officer and Civil Surgeon of the notified area, Delhi, is granted six months' combined leave out of India under the Leave Rules of the Indian Army (the first 90 days on privilege leave), with effect from the 1st May 1913 or any

Pension Service—21st year commenced on 30th January 1913

THE Deputment of Education Notification No 1212 dated the 22nd July 1913, placing the services of Captain W S McGillivray, I M S, at the disposal of the Government of Burma is hereby cancelled

THE services of Captain H R Dutton, IMS, are replaced at the disposal of the Government of Bengal, with effect from the 3rd June 1913 Capt Dutton got typhoid at Delhi and had to take leave home

THE following promotions are made, subject to High

Captains to be Majors, I M S

Alfred Einest John Lister, WB, FR(S, Thomas Samuel Beinchamp Williams, WB, John Edmund Clements, MB, Ernest Bisset, MB, Alexander William Overbeck-Wright, Caiter, FRCS, Dodington George Richard Sheiston Baker, WB, James Henry Hoton, DSO, MB, William Adolphing Justice, WB, with effect from 29th July 1913

This means accelerated promotion for the above officers who entered the service on 29th January 1902. The batch was a big one and consists of 26 men, of whom the above 12 only have up to now received or qualified for accelerated promotion

LIFUIFNANT COLONFL BRUCF G SETON, VHS, and Deputy Director General, I M S, has been promoted Brevet Colonel from 30th June 1913

CAPTAIN W F BRAYNF, IMS, on plugue duty in Burma, is appointed to officiate as Deputy Sanitary Commissioner, Burma as a temporary measure with effect from the 23rd July 1913

Under the provisions of article 168 of the Civil Service Regulations Major A Fenton, W.B., I.M.S., was appointed to officiate as Superintendent of the Lunatic Asylum, Rangoon, in addition to his own duties, from 12th April 1913 to the 15th May 1913, both days inclusive, in place of Major W. H. Cox, DSO, IMS

The following I M S officers attended the 42nd Session of the London School of Tropical Medicine and passed the examination — Captain H H G Knapp, ND (with distinction), Captain B B Prymaster, and Capt J B Dalzell Hunter, MB

LIPUTENANT COLONEL B R CHATTEPTON, I MS, Civil Surgeon of Muzaffaipur, is allowed purilege leave for thirty five doys under Article 260 of the Civil Service Regulations with effect from the 1st September 1913, or any subsequent date on which he may avail himself of it

MAJOR W H C FORSTER, I M S, Professor of Pathology, Medical College, Lahore is granted combined leave, with effect from the 10th October 1913 niz —Furlough for one year with study leave for one year in continuation

Major H M Mackenzie, M B, I M S, is appointed to officiate as Professor of Pathology, Medical College, Lahore, during the absence on leave of Major W H C Forster, I M S, or until further orders

INS, or until further orders

THE services of Captain R B S Sewell, I MS, were placed at the disposal of the Army Department, with effect from the 15th July 1913

CONSEQUENT on the retirement from the service of Lieute CONSEQUENT on the lettrement from the service of Lieute nant Colonel H I Woolbert, Indian Medical Service (Bengal), in Agency Surgeon of the 1st Class, the following substantive changes among Agency Surgeons under the Foreign Department are sanctioned with effect from the 30th June 1913

Lieutenant Colonel W R Edwards, CMG, Indian Medical Service (Bengal), to be an Agency Surgeon of the

1st Class

Captain H Clossle, Indian Medical Service, to be confirmed as an Agency Surgeon of the 2nd Class
Lieutenant Colonel Edwards will join a class for Military training after his relief in November by Colonel G F A Harris, CSI, FRCP, IMS

CAPTAIN F W CRAGG, MD, IMS, is appointed to act as Assistant Director, Central Research Institute, Kasauli, during the absence on deputation of Captain J Cunning ham, MD, IMS, or until further orders

CAPTAIN RICHARD FRANCIS CHETWAND TALBOT, MD, FRUSI, Temporary Half Pay List, has been permitted by the Most Hon'ble the Secietary of State for India to letter from the service, subject to His Majesty's approval, with effect from the 24th July 1913 Captain Talbot joined the service on 1st September 1902 and has been on temporary half pay since 24th July 1909

AMONG the new M R C P's (31st July) we notice the names of Fleet Surgeon P W Bassett Smith, CB, RN, and, T S Lukis, M D, son of Sir Pardey Lukis, K C S I

THE D P H of the Royal College (England) has been taken by the following —Capt J A S Phillips, IMS, Capt E S Philpson, MB, IMS, and Capt J Taylor, MB,

LIEUTENANT COLONEL S E PRALL, M B, BS (London), I M S, 18 granted privilege leave of absence for two months from the date of relief

LIEUTENANT COLONEL P P KILKELLY, WE, Bch (Dub), I WS, has been allowed by His Majesty's Secretary of State for India an extension of furlough on medical certificate for two months

In supersession of Notification No 8007/II-336, dated the 24th May 1913, Lieutenant Colonel W Young, IMS., Chill Surgeon, on completion of his special duty to Campore

CAPTAIN B E M NEWLAND, INS, is posted to United Provinces for civil employ, and is posted to Etawah

CAPTAIN J F BYOD, INS, is posted to the United Provinces for plague duty

CAPTAIN M R S MACWATTERS, INS, acts for Dr Hunkin as Chemical Examiner, sice Captain Nesheld, INS

UNDER Section 6 of the Pisons' Act, 1894, the Chief Commissioner is pleased to appoint Mi Ishtra Ah, Extra Assistant Commissioner, Chlindwara, to the executive charge of the Chlindwara District Jail during the absence on deputation to Kasauli of Captain W J Fraser, Mf, FRCS, IMS, Civil Suigeon, Chlindwara

MAJOR A GWITHER, IMS, on general duty at the Presidency General Hospital, is allowed privilege leave combined with furlough for six months, viz, privilege leave for one month and nine days under Article 260 of the Civil Service Regulations and furlough on medical certificate for the remaining period under Article 311 (a) of the Regulations, with effect from the 3th August 1012 with effect from the 8th August 1913

ON leturn from leave Lieutenant T H Bonnai is postal to Goalpara, Assam, as Civil Surgeon.

CAPTAIN H C KEATES, IMS, took over the dutie of Chal Surgeon, Campbellpore, on 1st August

WITH reference to Punjab Government Notification No 548S, dated the 14th June 1912, Lieutenant Colonel G Mc I C Smith I M S, Civil Surgeon, was on study leave from the 9th October to the 21st December 1912

## Motice.

SCIENTIFIC Articles and Notes of interest to the Professior in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if i equested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to The Editor, The Indian Medical Gazette, c/o Messis Thacker, Spink & Co . Calcutta

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### BOOKS, REPORTS, &c, RECEIVED -

D B Lees Incipient Tuberculosis H L Lewis & Co
Mills & Humphreys, Surgery for Dental Students Longmans, Green
& Co Price 12s 6d
Sweinitz, Disease of the Eye 7th Ed W B Saunders Co
C Stricklands Anophelines of Malaya (1913) F M S Govt Printing

Office
Garrod, Ballen & Thursfield, Diseases of Children, 1913 Ed Arnold & Longmans, Green & Co Price 30s
Diets of the Presbyterian Hospital New York W B Saunders Co
The Pasteur Institute of India Report
Murphy & burgical Clinics Vol II, No W B Saunders Co
Bombay Asylums Report
Punjab Lunatic Asylum Report
Punjab Lunatic Asylum Report
Vaccination Report, Assam
White & Jeliffes Nervous Diseases (Vol II) Lea & Febiger
Major T Walls Poisonous Snakes (3rd Ed ) Bom Vat Hist Soc
Keogh's Manual of Venercal Diseases (2nd Ed ) Oxford Medical
Publications
Bidwells Minor Surger; Univ of London Press

Publications
Bidwell's Minor Surgery Univ of London Press
Jenkinson's Vertebrate Embryology Oxford Clarendon Press
Anerbuch's Headache Oxford Medical Publications
Sutherland's Treatment of Disease in Children Oxford Medic Oxford Medical Publi

### LETTERS, COMMUNICATIONS, &c , RECEIVED FROM .-

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# Original Articles.

A NOTE ON SOME USES OF A MODIFIED PURIN FREE DIET,

BY A HOOTON,

MAJOR, IMS,

Agency Surgeon, Kathawar

PRELIMINARY CONSIDERATIONS

This subject receives so little attention in the general text-books that it will perhaps be advisable, to begin with, to review briefly some of the chemical and physiological considerations on which it is based

According to Walker Hall (1) 'pum' is a term which was first applied by Fischer to a nucleus C N and all bodies constructed upon such a base may be included under this name The purin bodies of ordinary occurrence are hypoxanthin, xanthin, unic acid. guanin, adenin, Hypoxanthin caffein, thein and theobiomin and xanthin occur in muscle extracts, adenin is a decomposition product of thymus and guanin of pancieas, while them, caffein and theobiomin represent, of course, tea, coffee and cocoa Xanthin also occurs in various vegetable substances, notably the pulses, mushrooms and asparagus The animal purins may exist either in a free state or combined with albumin in the form of nucleic acid, and the daily wear and tear of the body leads to the moduction of a varying quantity under different conditions, the purins so moduced being known as endogenous, while those taken in with the food are spoken of as exogenous The production of endogenous purins may be influenced to a certain extent in various ways, for instance it is increased greatly by muscular exercise, and also in pyrexia and The exogenous purins which amount leukæmia to about half the total quantity got rid of daily, may be controlled almost completely by dieting

It appears (2) that feeding on unic acid itself causes no increased output of unic acid in the unic, but only of unea the unic acid absorbed being converted into urea by the liver. Adenin and guanin hypoxanthin and vanthin, ingested with the food are excreted partly as urea, partly as unic acid, and partly as less oxidised purin bodies.

Rendle Short argues that in gout there are probably two main factors at work, that the tissues are apparently more vulnerable to the action of uric acid than they should be and that, also the kidneys are not sufficiently permeable to the urates. A third factor might be the inactivity of the liver in the conversion of uric acid into urea. Haig (3) points out that an excess of uric acid in the urine corresponds with an excess in the other had australia, hold the blood which is associated with high blood.

pressure, and he divides this 'unc acid group' of diseases into two main classes; the local affections, corresponding with a local deposit of unates, a diminution of uric acid in the blood, and consequent low blood-pressure, and the general enculatory affections, which are, he says, associated with the opposite conditions The former would include the local manifestations of gout and theumatism, the latter headache, vertigo, mental depression, epilepsy and various other conditions which he attributes to the circulatory Though the effects of unc acid poisoning question of the causation of gout and i heumatism occupies a debatable ground that may be fairly abandoned, at the present stage, to the experts, there appears to be a general consensus of opinion that if the direct cause is not actually unic acid. it is at all events something which is associated with unic acid, and even the most stienuous opponents of the puin-fiee diet theory would probably hesitate before prescribing meat extracts in a case of acute rheumatism regards practical as certain limit, therefore considerations of treatment, there is not after all so very much at issue between the rival camps, and when we come to empirical observations, there are certain facts which are quite undoubtedly, for are There incontrovertible example, people who can turn then sick headaches, neuralgias and other symptoms, 'on and offlike a tap' as one observer has remarked, by increasing or diminishing their intake of purins. and some of the effects of an over-dosage of puin bodies are seen very well in the case of the excessive consumption of tea. It is no exaggenation to say that tea, as consumed by the Lancashire mill girls, for instance, and by many women of the upper and middle classes also, is a drug habit comparable to that of opium, the various hypnotics and alcohol, and it is unnecessary to particularize the serious nervous symptoms which accompany its abuse

The fact, also, that the kidneys exist largely to get 11d of a group of substances identical with some of those under discussion may reasonably be regarded as a danger signal in the case of foods or drinks containing such bodies in high proportion, and in this connection the quoted fact that it is difficult to distinguish by chemical analysis between beef-tea and urine may be recalled. Finally, the case of New Zealand may be cited—a country which, favoured climatically as it is, should not, one would think, be notable for rheumatic affections, but one of the outstanding features of which is the great bathing establishment maintained at Government expense in the thermal region for their treatment, and apparently very largely patronized, while, on the other hand, the Dominion, together with Australia, holds the record for its consumption of

#### SOME ILLUSTRATIVE CASTS

According to Haigs views a very long list of diseases are traceable to the action of unc acid and therefore best treated by withholding purm Amongst these he places bodies in the food dyspepsia migraine, neurasthenia curhosis of the liver, Bright's disease, and, in the piecipitation group, gout, rheumatism, bronchitis, colitis, neuritis, appendicitis, and some other local inflammations Bryce (4) in his recent book on diet gives an account of his experience of the treatment in headache epilepsy, asthma, neurasthema and some other conditions He expresses the opinion that the great majority of headaches in women are due to caffein (? thein) poisoning He found the purin-free diet remarkably successful in dealing with them, and also considers that it offers the best chance of a cure in epilepsy, though the improvement in some cases of that disease, as in his experience of the treatment in asthma also, has been only temporary In neurasthenia, on the other hand, he has not found it satisfactory My own cases may be grouped under the following heads

(a) Migraine—It is generally admitted, by most authorities, that no one cause can account for all cases of this very troublesome affection For instance, I know of one in a medical man which was most persistent, and resisted all treatment until the sufferer happened to read an account of 'sugar headache,' which appeared in one of the medical journals, when a curtailment of sugar, of which he had been accustomed to take a great deal, resulted in an immediate and permanent And it is well known that errors of refraction account for a large proportion of the cases A considerable number, however, remain, which are not amenable to any ordinary treatment, and in some of these the employment of a purin-free diet has a quite diamatic action A very marked example was that of a Biahmin who had suffered regularly every 3 weeks or so for the last 15 years, and consulted numerous physicians and tried all the ordinary drugs without any permanent effect The only purin article in his diet was dhal, and on excluding this and making up the consequent deficiency in proteid with curds and milk in various other forms, he was immediately relieved, the cure being permanent so long as he continued on those lines, while any renewed indulgence in the offending constituent brought on a relapse

(b) Neuralgia —Some cases of neuralgia are just as striking in their response to a purin-free diet. I know of one in which the patient had suffered for years from periodic attacks affecting the right side of the neck and right arm, and of such severity as to deprive him of much sleep and almost incapacitate him for work. The affection reached a climax in an attack of some 2 months duration which reduced him to such straits that he was willing to undergo the inconveniences of a

strictly purin-free diet for some time, partial relief followed almost at once, and in 4 days the pain had quite disappeared, though for some month-numbness and a certain amount of loss of power were noticeable. Here, again, a return to a liberal meat diet infallibly brought on a relapse in a few days.

(c) The third subdivision includes a class of case which must be familiar to everyone practising in the tropics, the plethoric type of individual, of middle age or beyond who may or may not take too little exercise, but is usually somewhat noticeable for his performances at table The symptoms. in this connection, are often somewhat vague, and of varied character, but the condition is obviously one of general nervous irritability patient suffers perhaps from vertigo and noises in the ears, or he complains of spots before the eyes, with muscular twitchings, sometimes of the eyelids but also often elsewhere, or he suffers from insomnia, which may be associated with more or less marked attacks of asthma several cases of this type in mind, who were immediately relieved of what had been to them very alaiming symptoms by stopping soup, tea and coffee, and restricting meat to one meal a In the cold weather, for example, when leading an active district life, and riding and shooting frequently, such people can often revert to the flesh-pots with more or less impunity, but on returning to a sedentary life they usually find it necessary to restrict their diet again

(d) Various chronic inheumatic and gouty affections. For example, a man of middle age who suffered from periodical attacks of sub-acute inflammation in a knee-joint, formerly the seat of acute inheumatic synovitis, and another some of whose inter-phalangeal joints became occasionally red, swollen, and tender owing to a chronic gouty affection. Both these improved rapidly under

the restriction of purins (e) Genito-un inar y in itability—In these cases no doubt the comparative alkalimity of the urine which accompanies a restriction of meat in the food may often have something to say to the satisfactory result which sometimes follows a more or less purin-free diet, apart from the elimination I may quote the following 2 cases one, a woman of middle age, whose life was a misery owing to a call to micturate every half hour or so, the other, a boy of 16 who was admitted to hospital for a very similar condi-In neither could any organic disease be discovered, and both responded in a few days The boy was to a modified purin-free diet under observation for some months afterwards and stated that any return to a full meat diet almost at once brought on his old symptoms Other forms of genito-urinary irritability, as a tule only accentuated by drugs, are also amenable to this diet.

(f) Obstinate dyspepsia, of a type which is often associated with constipation, sometimes yields to a diet on these lines after everything else has failed. No doubt partly owing to the reduction of the number of meals and increase of the intervals between them, and the restriction of fluid with the large meal at mid-day. It is certain that soup and tea often interfere seriously with digestion (5)

(g) Evophthalmic goitre—The only case which I have had an opportunity of submitting to this treatment did better on it than under ordinary remedies alone, but the fact that she was undergoing a rest cure and taking arsenic at the same time has to be borne in mind, and it is perhaps not fair to ascribe the improvement to diet only. The diet appears to me, however, to be specially suited to these cases, and I propose to employ it again if occasion offers

#### PRACTICAL DETAILS OF EMPLOYMENT

The adoption of a nigid purin-free diet, as recommended by Haig in its complete form, is There are, no doubt, cases not an easy thing in which, to obtain the full effect, the complete form is necessary, but very few people in ordinary encumstances are willing to submit to it unless they are driven almost to despair by acute pain or incapacity In an English town, for example, it almost necessarily entails patronising the vegetarian restaurants. places characterized often equally by grotesque faddism and bad cookery It has also to be remarked that many even of the ordinary vegetarian dishes are by no means purin-free, and that it is sometimes difficult to recognise those that are not modified diet. on the other hand, is a much more simple affair to undertake, and may be arranged without any necessity of social ostracism

The principal foods of high purin content are meat of various kinds, and its derivatives, pulses (including peas, beans and lentils), tea, coffee and cocoa, asparagus and mushrooms, oatmeal and cajon nuts As regards eggs, the authorities Walker Hall states explicitly that they contain no free purin or purin-yielding body, but Hang only allows the use of the albumen, 1ejecting the yolk This is an important point, concerning as it does one of the most useful substitutes for meat and personally, judging from clinical experience eggs in their entirety appear to me to do no harm As regards flesh foods there is a considerable difference in the analysis of various forms Walker Hall's figures show cod containing 4 07 grains per lb of purins as against 8 15 for salmon and mutton 6 75 as against 14 45 for beefsteak Chicken is given as 906, and turkey as 882, sweetbread (thymus) 70 43 liver 19 26 beans 4 16 (by other authorities the purm content of some of

the pulses is put much higher) and oatmeal 3 45 A cup of coffee contains 17 grains, Ceylon tea 1 21 grains Indian tea 1 05 grains, China tea 0 75 grains Malt liquois vary from 1 35 grains per pint for porter to 109 for lager beer, and wines show no trace From a consideration of the purm articles of diet it is at once apparent that, as regards utility, they fall into 2 classes, viz those which combine a high purin content with a high nutritional value and those that do The latter, fortunately comprise some of the most (from the present point of view) injurious items, and there is a considerable and growing mass of opinion that these substances are to be regarded as harmful luxures, and that while a certain proportion of individuals may be more or less immune to their action the majority of us, sick or well, would better without them This is the view which I personally incline, and I am opinion that soup and meat extracts, tea, coffee and cocoa, sweethread, kidneys and other glandulai organs, and perhaps mushicoms and asparagus, might very well be excluded from the This, however, is not likely to happen until the views of not only the public but also the medical profession have changed considerably, and the question is one which need not concern The first thing in modifying an individual's diet in this direction is to see that the loss of nutritional value entailed by the exclusion of puin items is made up by some equally nourishing substitute The standard of protein requirements laid down by Haig is somewhere between that advocated by Chittenden and the excessive scale of the older authorities, and will probably be generally admitted as sound It is calculated by multiplying the body weight in pounds by 9, the result being grains of proteid required each This is assumed to exclude any excess of adipose tissue, and a reduction has to be made for stout people Worked out for a man of 133 lbs the requirements would thus be about 1,200 grains, an amount which would be contained, on a completely purin-free diet, in the following scheme, which is given merely as an instance of the actual quantities implied -

16 ozs bread 544 grains 3 ,, cheese 420 ,, 10 ,, milk 131 ,, 13 ,, vegetables and fruit .. 104 ,,

It is, however, quite certain, that there are many people, who, on ordinary work, are unable to eat with comfort or assimilate this quantity of nourishment, in either this or a mixed flesh form, and considerable allowance has to be made for the personal equation

In adopting a modified diet on these lines then, a beginning should be made by cutting off or restricting all the most objectionable articles with no corresponding nutritional value. Soup, meat

extracts, glandular meats, ordinary coffee, Indian and Ceylon tea should be stopped altogether, weak China tea being allowed to a limited extent, if the loss of tea is much felt, and caffein free coffee (6), ('Infebelt Coffee,' obtainable from the L C Coffee Co, Ld, 71 Eastcheap London, E C) taking the place of the ordinary berries This coffee may be obtained in the berry, is quite indistinguishable from the other when fieshly loasted as required, and has been authoritatively shown to contain hardly any caffein In view of their somewhat uncertain but always high purin content the pulses should also be excluded In some cases for instance certain examples of migraine, nothing further is required, and the patient is subject to In others it may be very little inconvenience necessary to go a step further, and cut flesh foods (including fish and fowl) down to one light meal Then an arrangement of the following kind is often satisfactory, and entails not much dislocation of most people's ordinary habits —

Early morning—a substantial chota hazir of bread or toast and butter, and milk flavoured with coffee

Noon—the heavy meal of the day, consisting of, eq, eggs in some form preferably omelet, a vegetable curry or vegetables in some other form, rice and milk, or porridge made with coarse whole meal flour, and milk, or a milk pudding or macaroni and cheese, bread and a couple of ounces of Gruyere cheese, or some kind of fresh household cheese or curds, and fresh or dried fruits and nuts, if the latter do not disagree

Evening—a light fish and meat meal with green vegetables, followed or not by cheese sweets or puddings or potatoes By ringing the changes on these and similar dishes a quite pleasant dietary can be evolved And a little light wine or spirit or soda at dinner is also There are several points which call admissible for notice and modifying an ordinary diet in this In the first place, the mid-day meal in order to contain enough nourishment, is somewhat bulky, and a considerable period should be allowed both before and after it to encourage appetite and give time for digestion Six hours interval in each case is not too much for most people, and if afternoon tea is drunk no solid food Then it is as a rule should be taken with it advisable to drink very little actually with a heavy meal of this description, any considerable quantity of fluid should be reserved till 2 or 3 And it is also necessary to bear in mind that the class of patient under discussion presumably digests meats with difficulty, and for that reason the dinner should be light and large quantities of starchy substances and sugar, which interfere with the gastric digestion of proteids, As a rule potatoes can should not be taken then be taken at the mid-day meal with advantage, but some people. in adopting a diet largely vegetarian,

are troubled with phosphatum, and it has to be remembered that potatoes in large quantities may be responsible for this symptom

#### CONCLUDING REMARKS

Haig, in his smaller work on uric acid observes that the medical profession, as a whole, is not convinced of the soundness of his principles, and he even goes on to say that so high have prejudice and party feeling iun in the matter that those physicians who themselves practise the 'uric-acid-free' diet are possibly judicious in exercising reticence on the matter with the greater number of their patients Outside the recognized dietaries for diabetes and one or two other well defined diseases, there certainly does appear to be considerable amount of prejudice, both on the part of the public and the profession. against theories which involve any considerable interference with popular habits of diet, and in view of the extraordinarily diverse and sometimes obviously grotesque systems which are from time to time brought forward, this is easy to understand, but I cannot but think that the purinfree system has suffered from a somewhat immoderate advocacy, and from a perhaps equally unjustifiable opposition It is, in particular, unfortunate—if one admits its uses—that the system should have incurred the opposition of Luff, whose works are so largely read, especially But there are signs in connection with gout that informed opinion is gradually changing, and in this respect a reference may be made to three necently published works which all contain testimony to the value of this diet, viz, the New Physiology, by A Rendle Short; the article on Diet by Spriggs in Latham and English's ' System of Treatment,' and ' Modern Theories of The latter in particular—whose Diet' by Bryce book contains by the way, a dispassionate criticism of most of the current systems-may he quoted 'With this experience to guide me' he says 'I am now in the habit, in all chronic cases of disease in which the ordinary methods of treatment have yielded no good result, of cutting off all xanthin-containing and purin-containing articles of diet, which are at the same time nonnutritious or practically so, and this includes tea. coffee, meat, soups, beef-teas and gravies undoubtedly throw a great deal of extra work upon the organs of excretion-and are liable to form toxins

It is the impression that this method of treatment is very little employed, together with the conviction that both in health and disease the principles on which it is based are well worth bearing in mind particularly in warm climates, that has prompted me to make the present communication. The purin-free diet, complete or modified, is not, as some one has elsewhere observed, a sovereign panacea, but it is a most

useful part of our therapeutic equipment, and it might, I would uige, be employed very much more frequently than it is at present

#### References

(1) The Purin Bodies of Food Stuffs, by I Walker Hall (Sheratt and Manchester)

(Sheratt and Manchester)
(2) The New Physiology in Surgical and General Practice,
by A Rendle Short (John Wright and Sons, Bristol)
(3) Uric Acid An Epitome of the Subject, by Alexander
Haig (1 & A Churchill, London)
(4) Modern Theories of Diet, by Alexander Bryce (E

(4) Modern Theories of Diet, by Alexander Bryce (E. Arnold London)
(5) Collected Contributions on Digestion and Diet, by Sir William Roberts (Smith Elder and Co., London)
Though somewhat out of date this work still well repays perusal, in connection with questions of diet in general
(6) Caffein free Coffee
I know of two individuals, both medical men, who are unable to take ordinary coffee, owing to its causing headache in the one case and in the other insomnia. Both find they can take caffein free coffee with impunity can take caffein free coffee with impunity

#### RELAPSING FEVER IN CHITRAL WITH AN ACCOUNT OF SUCCESSFUL ANIMAL INOCULATIONS.

BIC H SMITH, MD, 1 RCS,

CAPT, IMS,

VVD

G F GRAHAM, MD,

CAPT, INS

Several papers have appeared in the recent literature on Indian relapsing fever in which an effort has been made to differentiate distinct (Lieut H. Stott, clinical types of this disease IMS, I M G., August 1911, Major G V Browse, INS, I. M G, October 1912, Capt  $\Lambda$  M Jukes, ims, I M G, June 1913) number of cases which occurred in Chitral in the late winter and spring of 1913, seem to illustrate two types of this fever

The outbreak, which was of epidemic form, first appeared among some remote Kafir villages on the Afghan frontier situated at some seven thousand feet elevation From the account of the villagers this appeared to be a disease which was previously unknown among them were no deaths and recovery in two or three months was the rule, neither was there any history of sequelie None of these cases came to hospital for treatment, but slides of their blood showed very numerous sprochetes of a small The following is a short account of eleven cases which occurred in the Chitral garrison

These cases are divided into two groups Two cases which were injected in the abovementioned villages at the end of February The remainder of the cases which were injected at the end of April in the Chitral Valley, about ten miles from Drosh at an elevation of four thousand five hundred feet

(1) These two cases occurred in Punjabis who had accompanied an officer to the Kafir villages on a shooting trip The disease commenced suddenly about ten days after return to Drosh. Charts Nos 1 and 2 show the type of fever

will be noted that in both cases there was a continuous temperature for several days, only one case had a relapse The general appearance both resembled enteric fever which was heightened in one of the cases by the occurrence There was no enlargement of the of epistaxis spleen or other physical signs or symptoms. Both cases were of short duration and were discharged from hospital in three weeks and have had no relapses since

Blood examination howed the presence of numerous spirochætes of rather a small type, six to twelve spirochætes were observed in each field An actual leucocyte count was of the microscope not made, but judging from the slides anything in the nature of a leucocytosis was not marked

(2) The other nine cases occurred among the Gurkhas and the Pathan Sappers of the Chitral gailison and show a distinct contrast to the two Five of these cases were cases just described infected in the same place, in the same week, Charts Nos 3 within a day or two of each other and 4 illustrate the type of fever This values greatly from the two cases first described, the disease being much more prolonged, lasting some four or five weeks, the number of relapses 18 also considerable and the intervals between them most nregular, each relapse is also of short duration

Table showing the number of relapses in each of the nine cases.

				700		===	===			
Number of cases	1	2	3	4	5	6	7	8	9	
Number of	2	3	0	1	0	1	1	0	1	Total 9

The incubation period, as far as could be made out, appeared to be ten or eleven days

Compared with the first two cases the general condition was much less grave, the patients feeling quite well as soon as the temperature In a few of the more prodropped to normal longed cases, towards the end of the disease, there was some anæmia and general debility All these patients complained of severe general body pains during the febrile paroxysms, in one One patient had concase requiring morphia tinuous pain in the upper part of the sternum which only disappeared one week after the last In only one case was there enlargement 1 elapse This man had a spleen projectof the spleen ing two inches below the costal margin, but he gave a definite malarial history and stated that his spleen had been enlarged for some considerable time before the onset of the fever other symptoms or physical signs were noted in these nine cases

Blood examination showed in every case the presence of spirochetes, but these were very few and far between and often difficult to find the blood slides contrasting markedly with those of the first two cases with their very numerous spinochaetes. These spinochaetes appeared to be larger than those found in the first two cases, the end to end form, and parasites apparently undergoing longitudinal fission were noted. In none of these slides was there an apparent leucocytosis and in one case a total count showed only 6,000 leucocytes per CM, differential counts showed a small relative decrease of the polymorphonuclears and a corresponding increase of the large mononuclears.

These nine cases just described seem to resemble, in many points, those described in Quetta by Major G  $\,^{V}$  Browse 1 V 5, in the I M G, of October, 1912

Animal inoculation experiments—The animals used were young rats of the genus Mus Rattus—These animals were kept under observation for some days before the experiments were commenced

Experiment 1—Three rats received a subcutaneous inoculation of 1 cc of blood taken from the median basilic vein of one of the second group of cases during a relapse (see Chart No 4). No citiate was added to the blood, it was simply taken from the vein and quickly before it had time to clot, injected into three rats. A daily examination, by means of films, was made of the rats' blood. On the third day after inoculation spirochetes appeared in the blood of all three rats, persisted for two or three days and then disappeared and were not found again.

The following table exemplifies these points —

Throughout these experiments the four rats appeared to be perfectly fit. The spirochætes found in their blood resembled those in the blood of the case from which the blood was taken both as regards numbers and morphological characters.

Post-mortem examination of these rats, both during the period when spirochetes were present and after they had disappeared from the blood, showed no obvious changes in the different organs

Judging by the recent literature of Indian relapsing fever inoculation experiments with various animals seem to have proved unsuccessful. The success in these cases may have been due to the following points—

- 1 Young rats were used
- 2 Species of rats used was favourable
- 3 No citiate or other chemical was added to the blood used in inoculation

#### DELAYED CHLOROFORM POISONING

BY D MUNRO,

VAJOP, 1 VS,

AND

A DENHAM WHITE,

CAPT, INS,
Resident Surgeons, Presidency General Hospital, Calculta

WE consider the following note to be of interest in shewing how a successful operative procedure may be followed by a result fatal to the patient and difficult for the Surgeon to anticipate, death being due to a toxic after-action of the anæsthetic on certain organs of the body. Many such

Date	30 5 13	31 5 13	1613	2 6 13	3 € 13	4 6 13	5 6 13	6613	7 6 13
Rat No 1 Rat No 2 Rat No 3	Inoculated with 1 c c blood Inoculated with 1 c c blood Inoculated with 1 c c of blood			Spiloch etes present Spilochetes present		Spirochætes present	present on 3rd June 1913	and its	blood
	01 01000	}							

Experiment 2—½ c c of spirochæte containing blood was obtained from the heart of 1 at No 3 of experiment 1, and quickly, before it clotted, impected into the subcutaneous tissues of a fourth 1 at On the third day after inoculation spirochætes appeared in the blood of this 1 at and persisted for three days

cases are already recorded, we add to the record, not because we have any fresh light to throw on the pathology of the condition, but in order to draw attention to it again in the hope that others who have met with such cases in their practice may be able to add something to the present states of our knowledge. Is it possible to be

#### TABLE.

	•					
Date	3-6 13	4 6 13	5 6 13	6 6 13,	7 6 13	8 6 13
Rat No 4	Inoculated with 1 cc of blood from Rat No 3			Spirochætes pre sent	Spirochætes pre sent	Spirochætes pre eent

# RELAPSING FEVER IN CHITRAL WITH AN ACCOUNT OF SUCCESSFUL ANIMAL INOCULATIONS

BY CAPT U H SMITH, VD, FRCS, IMS, AND CAPT G F GRAHAM, MD, IMS

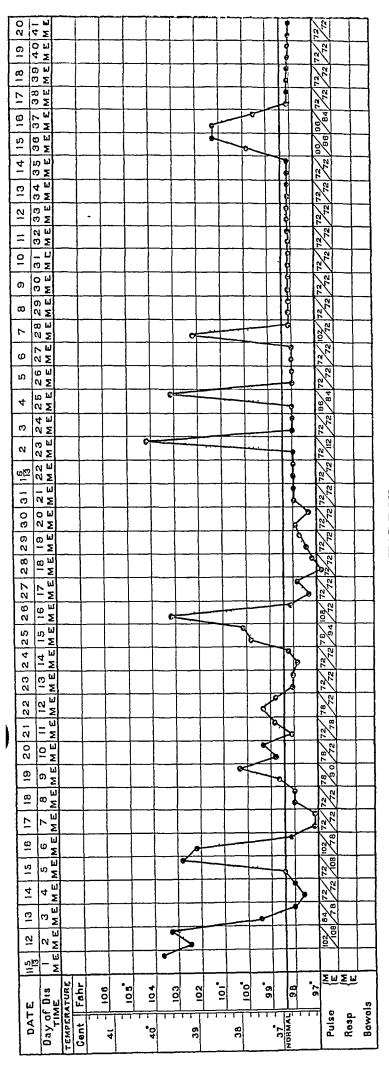
CHART I

# CHART II

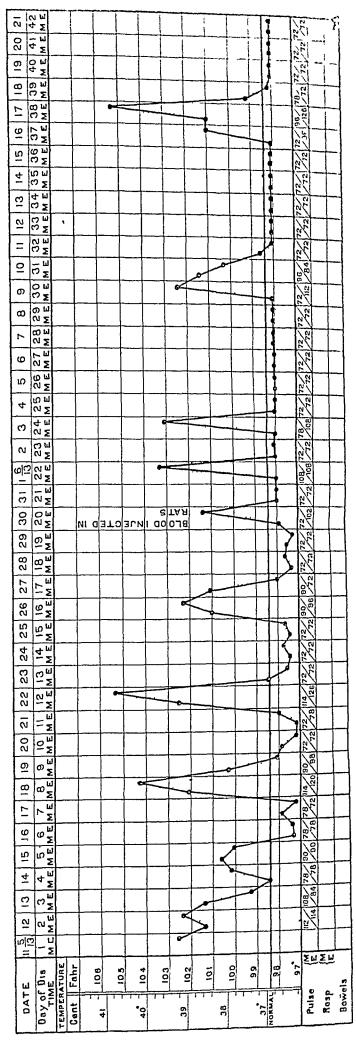
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# CHART III



# CHART IV



warned beforehand that in a case selected for an operation, there is danger of delayed chloroform poisoning? That is the question of practical importance, and they are not wanting some signs which indicate the kind of faulty metabolism in the patient which is to make the administration of chloroform a dangerous procedure. Those points we propose to discuss in the light of two cases which have occurred in our practice during the last five months.

Case I - European female, age 23, who had been suffering from symptoms of gastric ulcer for the past five years, only temporarily relieved by medical treatment On admission she was found to be a poorly nourished young woman She came in desirous of operation, having been advised to that effect by her usual medical atten-An opinion with which we concurred after week's observation and medical treatment Accordingly her abdomen was opened under chloroform given by the open method, a simple pylonic ulcer was found and a posterior gastrojejunostomy performed The operation was not difficult and there was no undue delay quite well until about 8 PM that night, when she vomited about a pint of dark blood During the next 24 hours she continued to vomit dark brown fluid containing coffee ground sediment The vomiting occurred at frequent intervals Her general condition was good, the abdomen was soft, the pulse varying between 90 and 100, temperature below 100°F Mentally she was On the 31d day the condition quite bright was much the same but the patient was not so bright and the vomiting continued Rectal feeds were retained and the bowels acted with an On the 4th day a low delirium set in with intervals of complete consciousness and there was marked restlessness-vomiting still continued but was more bilious in character temperature was still only slightly raised, but the pulse rate was rising and the abdomen was still

Delirium passed into coma and she died on the 5th day. During the last two days a peculiar smell was noticed in her breath since believed by the one of us to whom the case belonged (DM) to be acctone. It is unfortunate that before operation the urine was only subjected to the usual tests for albumin and sugar and after the operation was never tested at all. Death was thought to be due to exhaustion and comiting due to the establishment of a vicious circle.

Post-mortem—A partial examination of the abdominal organs was all that could be obtained. The wound was healthy and there had been no leakage from the anastamosis which was sound and lightly healed—also patent. The operation in fact had been quite successful.

The liver, which had been noticed at the time of operation to be quite healthy appeared like the

liver of an acute yellow atrophy The kidneys shewed advanced fatty degeneration.

Case II - A female child, aged 13, of European parentage, admitted with an attack of appendicitis She was an excessively fat of three days' duration child and unusually well developed The adipose deposit was not so extreme as it had been when the one of us to whom the case belonged (A DW) saw her first a year ago. The condition then might be described as phenomenal She was in the habit of eating sweets all day and had an Her weight was about unusually large appetite Careful physical examination showed no other abnormality, and the urine shewed no abnormality when subjected to the usual routine Operation was advised, and performed on The usual routine of prethe following day operative procedure was followed and in addition a hypodermic injection of morphia sulph. 1-12, Atropine gis 1-300 and hyoscine grs 1-300 was given 20 minutes before administering the anæsthetic, chloroform was used by the open method, and was well taken

Despite the presence of a layer of abdominal fat some  $1\frac{1}{2}$  inches thick, there was but little difficulty in removing the appendix, and there were no adhesions

The organ was red, and on opening up its lumen, it was found full of blood from small punctate hæmoirhages in the mucous membrane The omentum was unusually voluminous, and full of fat deposit The operation was well stood and lasted about half an hour after returning to bed, the patient was quite bright and asking for food. Some four hours later she comited about a pint of daik grumous The pulse was fluid resembling coffee-grounds 120 per minute-temperature 102°F, general condition good and patient felt well lavage was carried out by giving a pint of sod bicarb solution to drink, which was vomited This was followed by 10 minims of adrenalm chloud solution 1-1,000 given every hour for four doses Coffee-ground vomiting in small quantities, however, continued during the day and the patient passed a restless night though the temperature fell to normal following day 24 hours after operation, there was a distinct icteric tinge of the skin-the pulse was rapid 110-112 and vomiting continued at intervals, the fluid vomited being always of the same nature Some pain was complained of in the epigastrium The abdomen was soft, the wound satisfactory, and the patient bright and complaining of hunger All fluid nourishment, however, was rejected as soon as given temperature rose to 100 5°F in the evening and she passed another restless night with constant vomiting

On the following moining, 48 hours after operation the state of affairs remained much the

She was still vomiting, but the vomit was now more bilious with a slight admixture of coffee-grounds distinct icterus There was All attempts at feeding were futile The temperature was normal but the pulse was very rapid and the patient restless and weaker About midday she became delirious, the delirium becoming rapidly acute till she was wildly delirious and screaming Heroin grs 1-24 failed to quiet her No urine had been passed for 12 There was no smell of acetone noticed in hours the breath

She rapidly became worse, and passed into a comatose condition which ended in deaths 64 hours after operation

Unfortunately an autopsy was not allowed

Commentary — That the symptoms in these cases were due to a profound intoxication cannot be doubted and everything points to chloroform as the intoxicating agent for the clinical picture closely corresponds to the recorded cases viz (1) uncontrolled vomiting of coffee-grounds or altered blood, (2) icterus (not present in case I), (3) delirium, rapid pulse and coma, (4) onset after the primary recovery from anæsthesia sence of acetone in the urine was not ascertained in either case in case I because the condition was unsuspected, in case II on account of suppression The odom of acetone in the breath was noted (but only in retrospect) in case I Unnoted in The anatomical changes found postmortan in cases of delayed chloroform poisoning are already well-known They consist of fatty degeneration of the muscles, especially the heart muscle, of the kidneys, the stomach and mucous membrane generally, fatty infiltration of the liver, and the presence of pigment due to distinction of red blood corpuscles In case I only was a partial post-mortem obtainable, but so far as the examination went, the pathological changes characteristic of this condition were found

What then are the factors which rendered these individuals more liable than others to chloroform poisoning?

Before answering this question in respect of our two above quoted cases, we must first briefly discuss the present state of knowledge concerning the causation of delayed chloroform poisoning as a pathological entity, a subject on which a great deal of work has been done

Stiles and McDonald (1) consider the fatty degenerations to be the result of the property of chloroform as a protoplasmic poison, they find a similarity between delayed chloroform poisoning and other auto-intoxication, and have observed an increase of acetone in the urine which they regard as derived from the breaking up of the fat in the degenerated fatty tissues. That the protoplasm in the nervous system, and in the blood, is most gravely affected is explained by the fact that the

largest amount of chloroform is found combined in those organs which contain the greatest proportion of constituents soluble in chloroform, i.e., the nervous system and red blood corpuscles lecithin and cholesterm being the fixing agents

They thus explain the selective toxic action of chloroform on the tissues but it still remains unexplained why the protoplasm of some people is more vulnerable to the toxic action of chloroform than that of others There must either be some other factor at work in the tissues of the chloroform poisoned victims, tending to make then protoplasm more vulnerable to chloroform or it must be that the toxic action of the chlo-10form itself renders the tissues more vulnerable to some other poison circulating in the blood It seems now to be probable that the latter is the case and that the factor has been found in the condition known as acidosis, the probability being, not that the acidosis ienders the tissues more vulnerable to chloroform, so much as that the chloroform increases the vulnerability of the tissues to an acid intoxication It seems to us possible, however, that both toxins aid each other and that act like a vicious circle in producing the final result, and that the victims were not only individuals predisposed to acidosis, but also individuals specially susceptible to the toxic action of chloroform

In the condition known as acidosis first diacetic and beta-oxybutyric acids then later, acetone, appear in the blood and are excreted in urine

With regard to the course of these acids it seems probable that they are derived not, as at first thought, from glucose, not from protein, but from abnormal breaking down of fats normal metabolism fats are completely oxidised into carbonic acid gas and water, but under certain circumstances, complete oxidation does not take place, and the above mentioned acids If this occurs on a large scale, are produced the conversion into acetone fails to keep pace with the production of acids, and therefore acetone appears first in the unne, then diacetic acid and finally beta-oxybutyric acid special circumstances under which the breaking down of fats deviates from its normal course occur when the tissues are unable to obtain This has been proved sugar from the blood experimentally (3)

Normally the body appears to be able to neutralize even larger quantities of these acids, first by using up the sodium and potassium reserves, and then by using that ammonia derived from the splitting up of proteids which was going to be used by the liver in the manufacture of urea. There comes a point, however, at which neutralization can no longer take place and the

blood is flooded with acids and acid intoxication occurs

So far the conditions in which acidosis is known to occur are (1) in diabetes and diabetic coma, (2) starvation, (3) the so-called cyclic vomiting of children, (4) salicylate poisoning, (5) the toxemias of pregnancy (6) delayed chloroform The last of these is the one which concerns us most Now it has been shewn by Battier and Soulier (4) that chloroform diminishes the amount of glycogen in the liver, and the blood being thus staived of its sugai abnormal fat metabolism follows and the train of events above described leading to acidosis and acid intoxication is bound to follow so long as the chlo-10form is still interfering with glycogen metabo-

With regard to the kind of patients in whom delayed chloroform poisoning is found, they are said to be (1) diabetes, (2) fat children, (3) starved patients (in which connection it should be noted that the danger is said to be greater if there has been a long interval between the last meal and the administration of the anæsthetic) In other words, the patients are those with a tendency to acidosis to whom the action of the chloroform in diminishing the glycogen in the liver proves the last straw

Of our patients, case I had been semi-starved for years, and very much starved during the week she was under observation, as she vomited nearly everything taken by the mouth Case II was an abnormally fat child, the glycogenic function of whose liver must certainly have been deranged by excessive carbohydrate ingestion

We consider that the question asked above as to the factors which rendered these patients more liable than others to delayed chloroform porsoning finds its answer in their tendency to acidosis

The conclusions to be drawn are (1) to test the urine with Fe Cl2 for presence of diacetic acid as a routine pre-operative and post-operative measure (2) to avoid prolonged starvation before operations (3) to give ether to fat people, starved people and those in whom acidosis is suspected, or found by the urme test before operation (4) In those patients whose unine shews the presence of these ketone bodies after operation, or who shew signs of delayed chloroform poisoning supervening, the trial of glucose and massive doses of alkalies given intravenously has been recommended, and seems to be a line of treatment on a rational basis so far no necovery has been reported from this most fatal form of poisoning

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#### ON THE USE OF SCOPOLAMINE MORPHINE AND ATROPINE IN PREVENTING SHOCK DURING CHLOROFORM ANÆSTHESIA.

By J J F DUNN,

Asst to Civil Surgn , Mussoorie

During the past few years, the practice has been introduced of giving certain hypnotic drugs as a preliminary to the administration of a The usual custom has been general anæsthetic to inject a small dose of scopolamine and morphine a short time before the administration of the anæsthetic is begun, with a view to inducing a preliminary drowsiness so that less of the anæsthetic is required to obtain and maintain satisfactory anæsthesia As far as I am aware, attention on this subject has been duected almost entirely to the use of scopolamine and morphine in combination, while atropine is only very casually advocated, as much as to suggest that its use or exclusion makes appreciable difference to the after-condition of the The object of this article, therefore, is to call attention to the value of a combination of scopolamine, morphine, and atropine as preliminary to the induction of anæsthesia by chloroform, with a view to the prevention of post-operative shock, a most important result, and one that would appear to be due less to the scopolamine and morphine whether singly in combination, and more to the atropine, and which does not appear to be so widely appreciated as it deserves

During the past few months, the method has been adopted in all serious cases to which I have administered the anæsthetic and with most satisfactory results These cases were of a very varied nature and a bijef mention of some of the more important is appended with a view to demonstrate more forcibly the advantages and safety of the method, which would appear to render possible operations on some patients on whom one would otherwise hesitate to operate

Case 1 — European female, age 45 years Intensely anæmic as the result of repeated hæmorrhages Operation-Abdominal Panhysterectomy No shock

Case 2 — European male, age 55 years very "poor case" for operation Had double inguinal herma for 30 years, double stricture of rectum and spinal curvature for Operation—Relief of strangulated herma (right) 20 and double radical cure Owing to the spinal condition chloroform had to be administered in the sitting position, the patient being well propped up with pillows No shock

Case 3 -Native female, age 30 years, very poor physique contracted pelvis Operation Cæsarean Section No shock and no deleterious effect on infant

<sup>(1)</sup> Scottish Medical and Surgical Journal, 1904
(2) The New Physiology in Surgical and General Practice
(2) the A Rendle Short Chaps VIII and IX

Case 4—European female age 57 years Operation—Exploratory laparotomy No shock

Case 5—European male, age 35 years—On a previous occasion the operation of permeal cystotomy was religimed on this patient without the use of scopolamine, etc. He took a large amount of chloroform and caused much anxiety during its administration. Operation—Exploratory nephrotomy. No shock, took a relatively smaller quantity of chloroform and caused absolutely no anxiety.

Case 6 — European male child, age 12 years Operation—for the relief of abdominal adhesions after appendicitis No shock

Case 7—European female, age 52 years Had had rheumatic fever and suffers off and on from "neuralgia of the heart' Aortic systolic murmui present and patient very stout Operation—Vaginal hysterectomy lasting one hour and forty minutes. No shock.

Case 8.—European female, age 30 years, three months pregnant Operation—Radical cure of inguinal herma No shock and no deleterious effects on pregnancy.

Case 9—Native male, age 22 years Operation—Thyroidectomy for enlarged and cystic thyroid gland. In this class of case general anæsthesia is considered to be particularly dangerous, Kocher among others preferring to operate under local anæsthesia. This patient suffered absolutely no shock and caused no anxiety during the progress of the operation.

All these cases made good recoveries and in none of them was there the slightest amount of shock, though the general condition of several was such, that without the use of the injection, some amount of shock must have occurred The amount injected was scopolamine gi  $\frac{1}{100}$ , morphine gi  $\frac{1}{6}$ , atropine gr.  $\frac{1}{150}$ , except in case 6 where the dose was halved on account of age and in case 7 where the dose of atropine was increased to gr.  $\frac{1}{50}$  on account of the state of heart and the patient's previous history injection in each case was given half to one hour before the administration of chloroform was begun, what makes this combination so particularly valuable is perhaps not very easy to say, but the following considerations may be helpful in elucidating the true conditions

Chloroform pace the Hyderabad Commission undoubtedly kills by acting directly on the cardiac muscle, and by stimulating the cardio-inhibitory centre in the medulla. It also causes a great fall in blood pressure, for, though the respiratory centre is also depressed, and in the greater number of "accidents,' the respirations cease before the heart beat, yet the fate of the patient in such cases depends on whether or no the heart has been injured to such an extent as to be unable to carry on the circulation

It is well known that the first few minutes constitute the most dangerous period in the induction of chloroform anasthesia, and I mbles has shown that early fatal arrest of the heart may be due to excessive inhibition of the weakened heart. Hill has further pointed out that failure of the respiration may be caused by anomia of the centre due to a low blood pressure. Such weakness of the heart therefore constitutes a double danger for not only is the circulation endangered by it, but the respiration is indurectly weakened.

Now, it was long ago pointed out by Professor Schafer that atropine, which appears to be the most valuable drug in the combination, if given in a dose sufficiently large to quicken the pulse, i.e., to paralyse the cardio-inhibitory apparatus, will prevent chloroform stopping the heart, nor under these circumstances could the heart be arrested by shock

Attopine paralyses the inhibitory terminations of the vagus in the heart, and stimulation of this nerve, therefore, causes no slowing of the heart's The heart is therefore in the same action position as if the vagus were divided in the neck Along with acceleration of the pulse, the other effects of vagus section are also produced, viz. increase of systole, decrease of diastole, and increased output per minute. The blood pressure is also increased partly by this increased output and partly by a contraction of the arterioles in the abdomen due to stimulation of the vasoconstrictor centre in the medulla It thus acts also as a hæmostatic

In fact according to Waugh, who has collected a large amount of information on the hæmostatic action of atropine, this drug will control any form of bleeding except that from a large artery Thus another element in the production of shock, viz, hæmorrhage, is abolished

In addition attopine is a powerful stimulant of the respiratory centre, and is a further safeguard against the depressant effects of chloroform on It also, by its action on the heart that centre and blood pressure, prevents anomia of this centre to which respiratory failure is often due vagus terminations in the bionchi are depressed and cough and dyspnœa are prevented beneficial effect of atropine is on the gastrointestinal tract, whereby the secretions are dimimished, abnormal contractions are prevented, but The result 15 normal peristalsis is not affected that post-anæsthetic vomiting and post-operative flatulence are reduced to a minimum

Scopolamine has an effect similar to that of atropine on the cardio-inhibitory apparatus. It also acts as a central sedative producing sleep

Morphine depresses the higher central centres producing sleep. The leftex excitability of the motor centres is depressed, and the sensibility to pain is lessened to a considerable extent. There

is never much depression of the cardiac centre and blood pressure is unaffected. The respiratory centre may be depressed but never to such an extent as to cause total loss of excitability to stimuli. The secretions and movements of the intestines are also diminished. The drug is also stated to exercise a slight homostatic effect.

The following results are therefore produced by the use of the combination —

- 1 The patient is brought to the operating table more or less stupid and sleepy, and consequently there is as a rule little or no "operation funk"
- 2 Owing to the naicosis and lessened sensibility to pain, a relatively small amount of chloroform is required to obtain and maintain satisfactory anæsthesia, and what is more important, the degree of anæsthesia never requires to be pushed so far as to cause complete loss of the corneal reflex, even in the most severe abdominal operations, consequently
- 3 There is an entire absence of stertor and embarrassment of respiration during the stage of anæsthesia, and hence there is no need for the use of tongue forceps and pushing forward of the lower jaw, matters of great importance to the subsequent comfort of patients, who, when these manœuvies are employed often complain for days after of a sore tongue and pain at the angle of the jaw
- 4 The paralysis of the cardiac inhibitory apparatus, stimulation of the respiratory centre, increase of blood pressure, lighter anæsthesia and hiemostatic action produced, are all powerful factors tending to the absolute prevention of post-operative shock
- 5 Owing to the effects on the gastro-intestinal tract, post-anæsthetic vomiting and post-operative flatulence are either absent or reduced to a minimum, points of great importance in abdominal cases
- 6 The drowsiness and lessened sensibility to pain continue for some time after the operation allowing of the initial soreness of the wound to wear off to a considerable extent and thus conducing immensely to the comfort of the patient
- 7. The method appears to be applicable to every class of case, and even seems to be applicable in the case of fairly young children

The cases were all operated on by Lt-Col C Milne i us, Civil Surgeon Mussoone, to whose kindness I am indebted for permission to mention them, and at whose suggestion a careful trial was made of the method in them

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#### INTESTINAL OBSTRUCTION AND SCURVY,

BY A. L. SHEPPARD, MB, BS,

CAPT, IMS,

Civil Sur geon, Fort Sandeman.

Notes of this case may I think prove interesting. Certain points bearing on the etiology of acute intestinal obstruction, while far from conclusive owing to the difficulty of obtaining a correct history, seem to point to scurvy or some allied condition as the originating factor.

History of Acute Stage —I first heard of and saw the patient at 11 AM on April 9th, and he was a Pathan (Sheram), about 50 years old, who had been over the Afghan border as an outlaw for the past two years

He had walked to hospital at 3 A.M with a story of great abdominal pain for the last nine hours following a large meal of meat. The bowels were open on previous day but not since.

Seen by the Sub-Assistant Surgeon, castor oil had been given with no effect, and at 8 AM. there was a very small result to an enema, while three ounces more castor oil at 10 AM were ineffective

Condition—When I saw him he was doubled up with pain, and had just vomited. It had no facal smell. The face was drawn and eyes sunken, tongue furied and brown. The abdomen was distended and painful on pressure, without localizing tenderness. In regular intestinal peristals was marked, especially above the umbilicus. The rectum was empty, and not ballooned and there were no piles.

Pulse was feeble 110 Temperature 982. General condition was extremely bad, too bad to obtain a history then, and he was much emacrated No enlarged glands could be felt.

A diagnosis of acute intestinal obstruction was made, and considering his condition and age the most probable cause seemed to be carcinoma of the sigmoid

Operation was begun at 12-30 under chloroform and a left iliac incision was accordingly made long enough to insert my hand

A decided amount of free cloudy fluid was found The sigmoid, hernial and execul regions were normal

The large intestine was empty, and the presenting part of the small was red and distended to a diameter of one and a half inches

Several feet of this were examined bit by bit outside the wound, and then a collapsed portion appeared. At this point was a band running from the antimesenteric border to the base of the mesentery. Within six inches there were three such bands, one of which certainly seemed to have been stripped up from the mesentery, and then formed adhesions and contracted. They were all 3 or 4 inches long, and were inflamed, though not of very recent origin. At a spot on the gut

close by was found a tag of a recently broken adhesion tripped with lymph

The local intestinal peritoneum was red and slightly hæmorihagic. At one place there was fairly definite constriction caused by the bands, but not blocking the lumen of the gut entirely Obstruction was probably only caused by renous and arterial constriction and paralysis

No further search was made

These bands were cut off close at both ends and ligatured, one distended corl was fixed outside the wound and a Paul's tube tied in

A lot of gas and some fluid escaped immediately

Progress—In 24 hours two bedpans full of freces had drained away, the abdomen was flat, there was no pain or vomiting Except for hot water he was fed per rectum for 48 hours with milk and saline and occasionally coffee

During the 12th and 13th five motions were passed per nectum, probably only from below the dramage point

As the opening was in the jejunum I thought it best to close it as soon as possible, and accordingly on the 13th did an end to end anastomosis

Second operation—As the wound was fouled round the tube, the whole area after being cleaned up was painted with tincture of rodine. The loop was freed, pulled out, and the abdomen carefully packed off all round.

Carwardine's clamps were put on and about seven inches of intestine with a triangular piece of mesentery cut away. Packs were removed and clean ones inserted, and the ends of the intestine sutured with silk by the Czerny Lembert method, only sutures were made continuous for four or five stitches, and then tied

The mesentery was sutured, and one or two supporting stitches put in

The gut was then returned into the abdomen which from sight appeared normal with the omentum lying evenly over all

A small gauze drain was inserted for two days towards the left iliac fossa, and the wound sutured in one layer

As only the compounder was available to assist, the operation took  $1\frac{3}{4}$  hours, but the patient's condition was fan and pulse 120

Progress—Nutrients of milk, saline and egg albumen were given, with only hot water by mouth for the first four days

The temperature remained normal except on the 15th and 16th when the wound was red and fomented

There was no pain, vomiting or distension

From the 18th to the 28th the motions were loose with occasional and increasing mucus

Nutrients were stopped at once, and mag sulph in frequent doses tried, with arrowioot and milk by mouth.

As he did not improve and was extremely emaciated on the 28th he was put on digitalis and nux voinica, and food was increased rapidly, nice, sanatogen, and cuidled som milk (a staple food of the Pathan) was given

He became hungry, had no pain and went on improving without interruption, the diet being increased accordingly, and meat being given

Six weeks after the operation he was walking about and left hospital fat and well on June 4th

Past history—Chief interest attaches to this, which I investigated carefully when he was well enough

In October 1912 in Afghanistan, six months before admission, he passed fresh blood by the rectum at the time of going to stool but not intermixed with the motions, twice or three daily for two or three weeks. At the same time he had blotches of subcutaneous hamorrhage on his limbs especially the aims

(About a fortnight before leaving hospital he had three of these on his left aim. They were irregular, the size of a thumb nail, shewed no tendency to extend or multiply and all came in three days. His blood slide was normal. He was given calcium chloride gr. xxx for three days.) There was no epidemic of illness in his district at the time. Typhus in this district is sometimes met with, scurvy at times is common, and bad enteric is very rare

He had no hæmoptysis, hæmatemesis, epistavison hæmatuna and no pain

He also had no teeth, a most uncommon state for a Pathan Questioned regarding this he said that amongst his people when a man died his friends closed his mouth. If this was done before death the teeth of the one who did it invariably fell out. This misfortune had happened to the patient two years before. Hence his lack of teeth!

So much for his story Probably he had severe scurvy and so lost them

People in this part of the world who once get scurvy shew a decided tendency to get it again, and become predisposed to it, and I am inclined to think that the rectal hæmorrhages in October may have been due to scurvy also

Following these symptoms he was so run down that he could not walk for three or four months. He described his legs as so weak that he could not lift them off the bed, and when he finally returned to British territory he had to travel entirely on a camel as he was unable to walk at all

In this way he also came 47 miles to Fort Sandeman ten days before I saw him on urgent business During these ten days he improved and was able to walk about

Remarks — Other suggestions naturally occur to one to account for the melana

Hamonhoids—There was no evidence of these, not was there any enlargement of liver or spleen

Enteric — Perpetual hæmorihages such as described would almost certainly have proved fatal, besides which severe enteric is I think very rare amongst these people, and there would have been other cases probably at the same time

Typhus —Though not uncommon, this is an unlikely history, as these cases recover rapidly

Dysenter y—A recognised disease amongst Pathans He was emphatic that it was not dysentery as he had no mucus and no pain, either as colic or tenesmus. As they know dysenteric symptoms only too well I am inclined to agree with him

Malignant disease -No evidence found on

laparotomy

Scw vy — Is fairly common I have seen about fifteen severe and many slight cases this year alone It is known by the local people as a disease that affects the mouth and gums

If the original cause of the loss of his teeth was scurvy (and I can think of no other probability) it is quite likely that he would get it again

The local effect of scurvy on a toothless mouth is probably very slight, and the subcutaneous hæmorihages pallor and extreme weakness, and with emaciation lasting for months make up a quite likely history for this most variable disease

Melæna is not common in scurvy but it occurs Supposing my idea is the correct one what bearing did the scurvy have on the mesenteric bands

There was hemorrhage into the bowel and skin, why not into the peritoneum and peritoneal cavity, causing on absorption peritoneal adhesions

Pathans are great meat-eaters and the acute condition followed on a large meal of meat, probably gulped down in half chopped lumps with no teeth to masticate it

The bands may have been several months old, but recently inflamed and one had ruptured slight obstruction by old bands the residue of an old intraperitoneal hamorrhage during scurvy, a couple of pounds of unmasticated meat, violent peristalsis, local inflammation swelling, and constriction of the intestinal blood vessels completes the story

Conclusions — There are several interesting

First—His recovery, after the extremely emaciated condition he was in to begin with

Second—The mucous diarrhoea which troubled him so much after the second operation, entirely disappearing when his diet was rapidly increased

Thand—The supposition that the original adhesions were caused by bands formed after attack of scurvy

Fourth—These bands were the cause of acute obstruction following a large meal of unmasticated meat

I regret I was unable to make full investigations into the blood. The slide I saw was normal in every respect, but the coagulation time, etc., would have been instructive

As the hospital is 170 miles from the railway apparatus is limited

I am indebted to my assistant in the Civil Hospital, Sub-Assistant Suigeon Gopal Das, for the help he gave me in eliciting the history and for the interest he took in the case, and also for the skilful way he gave the anæsthetic at both operations

# IS SYPHILIS A FACTOR IN BLACKWATER FEVER?

By A II NAPIER, CAPT, IMS

THE ætiology of blackwater fever is uncertain, and many theories are current as to its causation—The malarial theory—the quinine theory, malaria plus another cause—and that it is a disease due to an unknown cause (the organism recently described by Coles in the B M J)

Blackwater fever has also been attributed to syphilis, and in this I concur and put forward the following theory —

Blackwater fever is found in syphilitic cases giving a positive Wassermann reaction, the actual onset of the disease being brought on by chill, over exertion, administration of quinine or an attack of malaria

Blackwater fever is symptomatically indistinguishable from paroxysmal hæmoglobinuma Manson' states "as regards paroxysmal hæmoglobinuma occurring in the tropics, a diagnosis might be impossible. Both diseases have the same symptoms paroxysmal hæmoglobinuma as a rule, is of a milder type. In my opinion, the two diseases are the same, or at least, the symptoms are produced in the same way. This view is supported by the fact that Dickinson<sup>2</sup> reports that 71 per cent of cases of paroxysmal hæmoglobinuma examined by him give a history of malaria.

The following points in connection with paroxysmal hemoglobinuria are of interest Copeman<sup>3</sup> writes "a definite specific history (of syphilis) has been forthcoming in all the cases that have come under my own observation"

Browning and Mackenzie make the following observation—"Three cases of paroxysmal hæmoglobinuma which we examined recently all had positively reacting sera"

These cases at that time were the only ones examined by the above observers and they all gave a positive Wassermann reaction and were cases of congenital syphilis without any of the

usual signs Camus & Paymez<sup>6</sup> describe three groups of paroxysmal hæmoglobinuria

First —Muscle hæmoglobinuna—hæmolysins being produced in the muscles on exertion particularly walking

Second —Blood corpuscle hæmoglobinuria due to destruction of the 1ed blood corpuscles in the

Third —Hæmoglobinuia due to the hæmolytic action of the urine

According to Ehrlich<sup>6</sup> hæmoglobinuna fugore is due to an autohæmolysm produced especially by the blood vessels as a result of the cold and is not due to extra-sensitiveness on the part of the red blood corpuscles to the cold

Donald and Landsteiner pointed out that the hæmolytic amboceptors only combined with the red blood corpuscles at low temperatures disproving the latter part of Ehrlich's statement

From the above statements one can gather the following information -

Paroxysmal hæmoglobinuria is a disease occurring in syphilities, many of whom have also had malaria The hæmolysins are formed in muscles or blood vessels, and combine with the red blood corpuscles in the peripheral circulation in the cold The 1ed blood corpuscles are rendered vulnerable to the hæmolytic amboceptors by cold and become sensitised in the peripheral Hemolysis occurs after the sensitiscirculation ed red blood corpuscles unite with the complement (which is normally present) in the internal circulation

In the same way, in Blackwater fever the hæmolysins are formed in the muscles or more probably in the blood vessel walls after exposure to cold, exertion, and the red blood corpuscles become vulnerable to the amboceptor after an attack of malaria, debility, the partaking of On being sensitised the red blood corpuscles are hæmolysed after combining with the complement in the internal circulation. only suitable medium in which the amboceptors can be formed and not destroyed is syphilitic serum with a positive Wassermann reaction

I suggest that in Blackwater fever a Wassermann should always be done, and if positive Salvarsan administered

I have kept these notes for some time and only publish them, as I am not likely to come across cases of blackwater fever to test them

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#### A Mirror of Hospital Practice.

NOTES ON SOME EXCISION OF THE THY PERFORMED AT THE SREE SREE SREE BIR HOSPITAL, NEPAL (KHATMUNDU)

BY SURESH CH DAS GUPTA, LUE (Cal).

Medical Officer, Bir Hospital and Lecturer of Anatomy, Nepal Medical School

In the course of a few months while Officiating Principal Medical Officer, Bir Hospital, I made up my mind to try operative treatment for goitre cases here, as for medical treatment I tried both local and internal means without any satisfactory results

This disease, as well as elephantiasis of leg and scrotum are no less plenty in this hilly country, and with some difficulty and persuasion I admitted some variety of goitre cases and thus opened the path for systematic treatment by operation, a short note of each of which is given below -

Case I - D P, male, age 12, admitted for operation on the 20th December 1911, in a fairly healthy condition. The tumour was of the size of an orange and situated on the left side alone and of cystic origin Patient was operated on the 22nd December, incision being given along the longest diameter of the tumour nearly parallel to the anterior edge of the sterno-mastord and having been separated from the surrounding structures all around and behind, was removed together with a portion of the true gland of the same side, on which it giew The wound healed up by first intention, and the patient was discharged as cured on the 31st December 1911

Case II -N K, male, age 35, was admitted on the 27th December 1911, the tumour was semi-fluctuating and of a parenchymatous variety, its right lateral and middle lobe were equally enlarged, and the latter hanging down up to the sternum I gave a curved incision with convexity downwards from little above the right angle of the lower jaw up to the supra-sternal notch and following the usual steps, the tumour was successfully removed Patient was discharged as This patient cured on the 11th January 1912 was quite idiotic at the time of admission, but looked intelligent at the time of discharge

Case III -M L, male, age 25, was admitted on the 21st January 1912, the tumour was of 8 years' duration and of a large size, unilateral, exceedingly hard, immovable and of stony feel There had been slight pressure symptoms also and change of voice, the superficial veins of the neck were engorged and dilated. After the incision, the tumoui was found to be adherent to the surrounding structures, and even to the sheath of the carotid, almost all the depressor muscles of the neck of the affected side appeared as mere fascias. The root of the isthmus was thick, short and calcareous, so that the knife could not make its way through it without the calcareous masses being peeled out. Patient was cured and discharged on the 5th February 1912

Case IV -K N, age 30, male, was admitted on the 3rd February 1912, with an enlargement of the whole neck and nodulated all over. The incision was given from one side of the neck to the other. resembling Kocher's collar incision, but slightly curved downwards over the most prominent part Having separated the upper and lower skinflaps, I approached the tumour of both sides at once clearing it on each side I removed the growth leaving the isthmus in the middle with a small portion of the gland attached on each side to prevent the after-effects It was a multilocular cyst with some hypertrophy of the glandular structure here and there and extensive colloid The wound, however, healed up by degeneration first intention at first, but 6 days after, a small tumour appeared at the lower angle of the incision, whence a flany mucoid discharge came I scraped out inside and swabbed the cavity with strong rodine with the result of the wound being healed up by granulation Patient was cured and discharged on the 8th March 1912

The temperature of all these patients except the fourth one kept normal all through from the time of admission to the time of discharge, their stay in the hospital averaged 20 days, longest 36 days and shortest 12 days. Most of the gotte patients were hard of hearing, but improved considerably after operation

On the whole, the operation for gotte is not a very difficult one, any surgeon with a cool head and careful hand can perform it. Of course the operator should be careful in selecting cases for operation, he should attempt easy cases in the first place and gradually more and more complicated ones.

Thyroid cysts are the easiest to remove, especially when they are movable, multilocular cysts of the thyroid are a little more difficult—and more so, when they penetrate deeply or run behind and above the angle of the jaw and are adherent. Next comes the category of true gotte—an enlargement of the thyroid There are two varieties—one soft parenchymatous, another hard lobular and fibrous, the former being diffused and uniformly enlarged, and having no line of demarcation are not suitable for operation in the primary stage, the latter present three forms—Morable, fixed and calcareous, each more or less circumscribed and distinct, but generally unilateral Last of all is the malignant variety—which is simply carcinomatous in

The essential points of this operation which is based on only on my own personal experience, but from observation on other cases operated

before me or with my assistance—will be considered under the following heads —

- (1) Preparation of the patient
- (2) Position of the patient
- (3) Anæsthesia and instruments.
- (4) Line of incision.
- (5) Ligature of superficial veins
- (6) Exposure of the tumou.
- (7) Lighture of important vessels
- (8) Precaution.
  - (a) Prevention of an embolism.
  - (b) Safety of important vessels, nerves, capsule of the thyroid trachia, esophagus, pleura, etc

#### (9) After treatment.

If all these points are minutely attended to and precautions carefully observed by a surgeon, I see no reason why the operation should not be successful. Four assistants are usually necessary for an ordinary operation, one to assist in the operation, second, to keep the head fixed, third, in charge of the anæsthesia, fourth or the last, an extra hand for instruments and emergencies. My chief assistant was Dr. Amulya Ch. Bhattachargee, sub-assistant surgeon, and others were military hospital assistants qualified in the Nepal Medical School. I performed my last operation with the help of military assistants alone.

- (1) As regards preparation of the case, there is no important feature in it, as a rule, patient is given a bath on the previous day, whole body especially head and neck being washed with soap and warm water and on the night previous, a purgative usually calomel is given at bed-time. No previous antiseptic dressings is necessary, a few hours before operation, the affected area is rubbed with ether and just before operation, the part is painted with official truct rodine, and that's all. In addition to other antisepsis, I always take some truct rodine into my hand and rub it all over, especially the tips of fingers, and make my assistants follow the example
- (2) Patient is placed on the back with a rounded pillow of a hot water bag of suitable size filled with water of body temperature and wrapped up in sterilized towel—under the neck. All parts except the area of operation are covered with sterilized towels. Six F. Treves' advice—that the "chin should be kept in a line with the sternal notch"—has a great practical value attached to it and should be followed with utmost care to the end of the operation
- (3) I use chloroform generally, and some times A C E mixture for old and weak patients, by means of a Junker's inhaler. I have little faith in cocaine or other local anæsthetics. Hypodermic injection of strychnine and atropine are always kept ready in separate syringes for emergencies. We have saved one case with profuse perspiration, gasping breath and extreme cyanosis by a single injection of atropine. Tongue forcep and gag should always be at hand.

Instruments —Scalpel two, Spencer Well's forceps, two dozen pairs, one ordinary masal polypus forceps, curved scissors on the flat, aseptic foint two, plane scissors one, aneurism needle one, Herma for Cullingworth's needle one, retractors two, dissecting forceps two, a probe and a director—are all is wanted

(4) Incision should be free When possible parallel to the anterior edge of the sterno-mastord muscle, but generally along the longest diameter and most prominent part of the tumour This procedure will help an operator to expose the growth and the surrounding structures in relation more vividly, of course the out border and the posterior surface of the sterno-mastord will bear an important relation and landmark to the great vessels and nerves of the neck There is a great risk in working in a dark and narrow space, and I would wain an operator from making a small incision, which carries with it manifold dangers and difficulties The deep part of the wound should follow the superficial incision as a On the whole I don't lay any hard-andfast rule regarding the line of incision, each should be judged by its own merit according to the size, position and direction of the tumoui

(5) The golden rule is, that each vein of the neck should be divided between two ligatures or clamp forceps according to the urgency experienced a great difficulty in this direction the veins should neither be tied too loose or too tight, if it is little loose, the ligature will slip, if it is little tight, it will cut the thin-walled vein resulting in either case troublesome hæmorihage. In my opinion, fine or medium twisted silk is the best stuff for ligature, a catgut will slip in no time and is useless The aneurism needle being passed under a vein visible across the line of incision and having been threaded, is drawn out, the silk cut into two equal pieces is drawn away from each other and tied neatly leaving an interspace of at least quarter of an inch for division with scissors Sometimes the veins of the neck being overstretched becomes almost unrecognisable, but following Sii F Tieves' direction, by having "the head lifted now and then "-which make the vein quite full and distinguishable, the task is extremely simplified

(6) After the preliminary incision, the subcutaneous fascia will appear with the platysma myoides almost inseparable, and on their division the depressor muscles will come in view, they should be refracted outside as far as possible to reach the surface of the tumour with its capsule intact, if not they might be divided in the middle and stitched together with catgut, or snipped off short at the end of the operation Beneath these muscles, the capsule will be clearly demonstrated, every possible care should be taken not to inquire the capsule at its anterior or lateral aspect, in order to avoid wounding the veins, which he beneath and is almost adherent

to it In this part of operation, the sharp blade of the knife should be sparingly used, the handle, a dissector, fingers or curved scissors on the flat, will serve a better purpose. Personally I have derived a great advantage in dissection of a part of this nature, with the blades of a curved scissors on the flat separately, using the upper convex blade on the left and lower concave on the right (of the patient), ie, with cutting edge down, the concavity of the blade to fit the convexity of the tumour

The difficulty arises, not when the surgeon knowingly opens the capsule, but when he does it without knowledge and struggles to separate it from the gland tissue. I had opened the capsule and cut the gland myself but at once brought the part in opposition by means of stitches or clamps with no bad results whatsoever

As a rule, first of all, the anterior aspect, then the lateral upper, posterior and last of all the inferior portions are cleared in order, enucleation should be made by means of a finger, dissector, handle, scissors either united or blades separate Next, the mass is turned over inside and the posterior surface is cleared as far as the middle line of trachia in order to isolate the isthmus from its attachment to trachia Now the 1sthmus 1s grasped at the outermost part with a polypus forcep, and Staffordshire or interlocking pedicle ligature is applied on the trachial side by transfixation with a Hernia or Cullingworth's needle and divided in between, care being taken not to include in the ligature or cut the recurrent laryngeal nerve

(7) As regards the division of important vessels, it is better to apply two ligatures similar to those of veins at the required site and divide between them. By doing so, a bloodly operation can be performed at ease. I generally apply a ligature on the friendly side and a clamp towards the other in order to save time and trouble. Inferior thyroid aftery should be ligatured quarter of an inch from the lower border of the tumour and cut through just as its branches enter the tumour in order to ensure the safety of the recurrent laryngeal.

(8) A—As for prevention of an embolism, if the directions given about the ligature and division of verus are followed in minute details, there is no danger. The verus of the neck having value, a minute veru also should not be neglected.

B—In order to avoid wounding veins, arteries, nerves, and other important structures, the operation having in mind their respective relations—should proceed very cautiously every step in the operation and use his knife or any cutting instrument with utmost care. No structure especially resisting should be cut or tied without thorough examination of the part and surrounding parts in relation, and full satisfaction of the individual structure,—its position, course and direction

I have never used a drainage tube in any of my cases, I apply ligatures or torsion to all bleeding points, and stop all oozing even, then wash thoroughly the operated area with hot normal saline, and then bringing the flaps in opposition put the interrupted stitches with silkworm gut, a quarter of an inch separate from each other If the parts are not properly opposed still, I apply a continuous suture in the interspace throughout. Next tinet of rodine is painted all over the stitched area and around, and a light dry and sterrlized dressing is applied and bandnged with thin muslin in the following manuer -First, the dressings having been fixed by a few turns (say, 4 or 5), the roll of bandage is carried from one side of the neck, through the axilla of the opposite side and across the back and beneath the other axilla and up again to the other side of the neck, and so on—the 'figure of 8' bandage is applied List of all, I give an injection of morphia generally, before removing the patient from the table

(9) After-treatment —The shoulders should be kept raised and head fixed by means of pillows or sand bags for some days after operation say, week With the earliest symptoms of cough I give tinct camphoi co, both as a curative and prophylactic If there is not much bleeding during operation, I don't give saline per rectum At first I used to give no food by mouth as the patients complained of difficult deglutition, but nutrient enemas were given. In my subsequent cases, I gave liquid food in small quantity at regular intervals If the temperature goes high I remove the dressings, inspect the wound and do the needful, if not, I remove the stitches on the 7th day as a rule and leave a light dressing for some days and then discharge case becomes septic, there is a great probability But if the of an unyielding sinus being left so every precaution should be taken to keep the wound aseptic during and after operation

# A CASE OF MYELOCYTHÆMIA

By BANARSI DAS, MB, BS,

Junior Demonstrator of Pathology, King George's Medical College, Lucknow

S A, Mohammadan male, set 40 years, was brought to the medical out-patients' department of the King George's Hospital on the 7th July 1913. He looked very pale and had to be carried about in a doole. His chief complaint was constant bleeding from the nose which became worse at might and to which also he attributed his weakness and pallor. The nose bleeding was slow but practically continuous, and the patient kept several rags of cloth on which he received the blood as it flowed from the anterior naies. He

had several of these rags soaked with blood when he came to the hospital On inquiry it was found that the patient was enjoying very good health till about two years ago when he had a sudden attack of epistaxis which lasted for ten days in spite of the treatment he received at Bhopal where he was working as a clerk. days' continued bleeding weakened him considerably, and he had hardly regained his former health when about three months after the initial attack he again started bleeding from the nose This second attack was of a week's duration but it left him unfit for work. He has failed to keep an accurate record of the course of the disease, but from what he said in reply to a number of questions it was gathered that he has been subject to recuiling attacks of epistaxis of variable duration (a week or more) with varying intervals (three to six months)

Abdominal palpation revealed the presence of an enormously enlarged spleen which extended an inch beyond the middle line and two inches below the umbilious The liver was apparently normal in size Questioned about his previous illnesses the patient said as fai as he could recollect he never suffered from fever of any soit malarial or otherwise He has a grown up son and a daughter who is married and has children None of his own or his daughter's children ever had epistaxis or anything else similar to what he has got He is suie his mother also was free from the disease as well as all his other relatives

His urine was of a strongly acid reaction. The specific gravity was 1010 and there was no albumin. He also complained of priapism and spermatorrhoea of a week's duration. In discussing the symptoms of spleno-medullary leukæmia, Osler refers to priapism as a curious symptom which has been present in a large number of cases. It may be the first symptom

The temperature fluctuated between 98° and 99° F during the few days the patient stayed in the hospital

The blood as it flowed from a prick in his finger was noticed to be exceptionally pale and thin, in fact watery A preparation was made, and on looking down the microscope one's attention was arrested by the presence of leucocytes in enormously increased numbers number of leucocytes seemed to equal that of the eightrocytes in every field as that it was found most convenient to count the former square by square in the same preparation exactly in the same way as is done for the latter, using Toisson's solution as the diluent The total number of leucocytes was calculated to be 1,192,000 per cmm or nearly 150 times the normal erythrocytes were observed to be only 2,672,000 per c mm or about half the normal number.

The percentage of hæmoglohin was estimated to he 13 per cent by means of Sahli's hæmometer The homoglobin percentage would probably be found to be higher if some other instrument—for instance, Oliver's Gowers—were used for the purpose as in these the 100 per cent or the standard is calculated are age on the hæmoglobin content of the blood of a number of healthy adults, whereas in Sahli's instrument the standard 15 based on the amount of hæmoglobin found in the blood of some of his healthiest and most full-blooded assistants Sahli himself recommends the estimation of hæmoglobin in the blood of a number of healthy individuals in a country and the average struck should serve as the standard of companison for that country Healthy upcountry youngmen don't seem to scale higher than 50 to 60 per cent. But a very large number of observations extending over some time are required to enable one to form a reliable opinion

The colour index worked out to be as low as 24. and the ratio of leucocytes to eightrocytes was 1 to 22 instead of the normal 1 to 600

A number of blood films were stained by the Leishman process, and the picture presented under the microscope left little doubt as to the diagnosis The films showed a very marked increase in the number of white corpuscles in every field, but in addition to the usual varieties of leucocytes seen in normal blood there were numeious large mononuclear granular neutrophilic cells, myclocytes of Ehrlich The blood picture was characteristic of myelocythæmia or myelogenous leukæmia as was confirmed by the differential count -

> .. 52 25 per cent Myclocytes 38 25 per cent Polymorphs Lymphocytes 3 25 per cent Eosinophils 4 25 per cent 200 per cent Mast cells

Unfortunately the ætiology of the disease is still obscure and so is the treatment only 24 cases in his wards in 15 years condition is rare, and when a case turns up there is every chance of its being returned as anæmia or chronic malaria unless the medical man has the equipment and the inclination to submit the blood of every case to a thorough examination

To stimulate his professional brethren in the mofussil to take to hæmatological work is the one aim with which the writer resolved to record this case which in itself is highly interesting from its typical nature and the rarity of its occurrence My best thanks are due to Major C A Sprawson, IMS, the physician in charge of the case, for his kind permission to take full notes of the case

and also for a number of valuable tions

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#### NOTE ON THE USE OF CHIONANTHUS VIRGINIANA IN DISEASES OF THE LIVER

#### By DR F ROUX

In all affections of the liver so common in India primary congestion of congestion resulting from gastro-intestinal disorders, incipient hepatitis. circhosis in its early stage whether alcoholic or following on malaria, one important and constant symptom, from the therapeutic point of view, is the more or less congested state of the liver

It is one of the earliest symptoms to attract the physician's attention, and great importance should attach to it, because, when first observed, it is possible to cure or, at any rate, to lessen the congestion by a suitable treatment and, thereby, guard the patient against the complications of a disease which, once established, is frequently beyond all remedial measures In fact, too much attention cannot be given to the symptom of congestion, on the prompt treatment of which the patient's recovery depends

What are the remedies to which recourse is usually had in congestion of the liver? Venesection, frequently recommended in Europe, 18 n doubtful measure in the case of patients in India often weakened by a prolonged residence in the country or by previous ailments Further, this treatment only affords temporary relief

Purgatives, in most cases, are generally resorted to, the more so as, in the majority of ailments, it is useful to clear the intestines of their harmful contents which may often give rise to com-While the use of a purgative is advisable, those generally employed are not without haimful consequences

The more drastic, such as aloes, jalap, scammony have an unfavourable action on the liver, as they produce a congestion of that organ in particular, should be strictly avoided in cases where the liver is the seat of more or less pro-It forms, nevertheless, the nounced congestion base of nearly all the purgative pills used indiscriminately by the public without medical Aloes may indeed, in certain cases, give rise to biliary disorders

Laxatives are useful in the early stages of most liver ailments, but the only purpose they serve is to relieve the intestines and, while their use may be followed by a decrease of the congestion, the effect is not lasting What is required

is, besides restoring the functions of the bowels, to modify the hepatic circulation so as to permanently reduce the congestion

For some time, in America, the use has been recommended empirically of a plant belonging to the order Oleace. viz, Chronanthus Virginiana. Its effects however, are variable owing, as the writer has proved, to use having been made of the bark of dired roots. If fresh sterrized plants are employed, the results are remarkably better and more constant.

Tcheltzoff demonstrated that Chronanthus considerably increases biliary secretion, the increase bearing more on the output of water than on the constituent elements of bile. The results observed in America were confirmed by the writer's personal experiments at the Bichat Hospital, Paris.

They prove that Chionanthus has a practically specific action on the hepatic circulation, rendering it of signal service in all cases of congestion more or less pronounced whether of the liver or of the portal system.

The chief preparations of Chionanthus are the thuid cutract (in equal proportions of bark and alcohol at 60 ('), which is party soluble in syrup and causes a precipitate in water. It may be prescribed in doses of 2 to 4 grammes, twice or three times a day.

The tincture, in the proportion of 1 to 5, may be administered from 1 to 15 grammes daily and even more. In view of the considerable proportion of alcohol which it contains, this preparation should not be prescribed in the beginning of currhosis of the liver

Chionanthus, however, has only a feebly laxative effect and, therefore, only fulfils one requirement although the most important, viz, the disengorgement of the hepatic organ. Since it is, as we have seen, of the utmost importance to void the intestinal canal regularly, Chionanthus, in medical practice, might be usefully associated with other remedies capable of supplementing its particular action by a more powerful laxative effect.

The best remedies for that purpose, the writer believes, are his Versicolor and Juglans Cinerea. The first of these is a directic and a laxative which stimulates biliary secretion while, at the same time a non-irritant purgative. Juglans Cinerea of which the valuable portion is the bark of the root, is a mild laxative free from irritant action which acts admirably in constipation.

By the union of all three a preparation is obtained combining all the essential elements in the treatment of the early stages of liver disorder. It any rate it appears to fulfil the two main requirements, it; disengoring the liver and the portal system and regularly voiding the intestinal canal.

#### ROUND WORMS AND PREGNANCY

Bi T G S, ROW,

Medical Officer, Silian, Negri Sembilan, F M S

It would perhaps be a presumption on my part to write anything on this subject, but my experience in several instances of fever during the puerperal period, may I hope, be of some avail to others of my profession, since but little reference has been made on this subject which, in my opinion, plays an important rôle in the parturient female. I say expressedly 'fever during puerperium' as it would be a misnomer to call it puerperal fever. Most of such cases within my experience have exhibited almost similar symptoms and it is enough to quote one case.

The gul aged 21, delivered a healthy full term child and the puerperium went on quite normally till about the 10th day During this time antiseptic vaginal douches were being given every morning and a dose of the traditional castor oil on the fifth moining had relieved all consti-The lochial discharge was quite free and regular, and was changing colour Temperature was normal throughout, secretion of milk abundant, no tenderness of breasts or cracked There were no any untoward results duing delivery as a ruptured permeum and the In fact the whole course was perfectly normal till about the 10th day when the temperature leapt at one bound to 105° Bowels which were acting regularly got bound up again Tongue got thickly furred and the lochial discharge which was gradually lessening and changing colour turned again blood red and became quite profuse requiring frequent change of There was slight wandering at times diapers and but for the last noted lochial symptom, the gul began to exhibit most of the signs of puerperal septicæmia Microscopic examination of the blood having revealed no specific cause, an initial dose of calomel was given and quinine was fieely administered with other antipyretics by the mouth, combined with eigotic injections to keep the discharge within limits The fever, however, showed no signs of abating keeping continuously for six days between 103° and 105° with a marked evening lise Involution was progressing satisfactorily, and no necessity as to any uterine injections or curetting was felt as the discharge was fiee throughout being quite odourless and there could thus be no suspicion of any retained placenta or lochial suppression cause could be found anywhere else, suggestive of this sudden trouble

On the 7th night, however, re, on the 17th night of delivery the patient appears to have passed a couple of worms which were luckily

noticed by the nuise in attendance. The next morning on the circumstance being reported to me. I lost no time in giving the patient an efficient dose of santonine followed later by an ounce and a half of castor oil. This had the desired result nearly 15 to 20 round worms being passed that evening. The very next morning the temperature came down to normal and in a couple of days thereafter the discharge had appreciably diminished and the general condition of the patient considerably improved. Without much medication, the patient subsequently made an uneventful recovery.

Evidently then the whole trouble was one due to presence of round worms. Three similar cases having been encountered, I have now made it a rule to invariably give a 5-grain dose of santonine, on the 4th night after delivery followed by castor oil next morning in all my cases. The result has been quite successful, and I would recommend a general use of santonine, in partunent females on or about the 5th day of delivery as santonine apart from being an anthelmintic is also an emmenagogue

In the case above-quoted the past history revealed the existence of recurring gastric disturbance and colicky pains at times. During pregnancy, which were mistaken for feetal movements and no anthelmintics or purgatives were administered for fear of premature labour. In the other two cases there was nothing to show or suspect any presence of worms and the pregnancies have had a normal run. It follows then that while round worms have no specific effect on pregnancy, they have an undoubted bearing on normal puerperium.

The question then naturally alises why worms should cause a general disturbance particularly during the puerperial period The presence of ascandes in the intestines does not seem to be in any way prejudicial to healthy pregnancy from it, I am constrained to think that the pressure of the gravid uterus keeps any ascarides present confined to their abode and probably the worms themselves feel quite comfortable in their situation with a bit of sustained pressure from The moment that this pressure is without relieved in the course of parturition, the worms begin to feel that they have now more space to roam about and thus their sudden activity after a prolonged rest results in an accumulation of obnoxious gases which when absorbed into the blood causes an auto-intoxication simulating That is however, how I puerperal septicæmia explain it though I know not if I am right in put-It is likely that at least some of your readers might have been confronted with a like experience, and I should be obliged for further reference on the subject through your esteemed columns

#### A SURGICAL CURIOSITY

BY L BODLEY SCOIF, MD.

CAPT, I VIS

I THINK the following is a sufficiently rare and interesting case to be placed on record

Samullah, a youth, aged about 20, came to Sylhet hospital on October 1st, 1912, complaining of a sinus discharging urine in his right thigh and frequent and painful micturition

Mistory—He states that about two years ago an abscess formed in his thigh and burst. The hole has ever since discharged pus and urne Lately he has had much pain in the region of the bladder and frequent desire to pass urine This is all the information that can be got from him

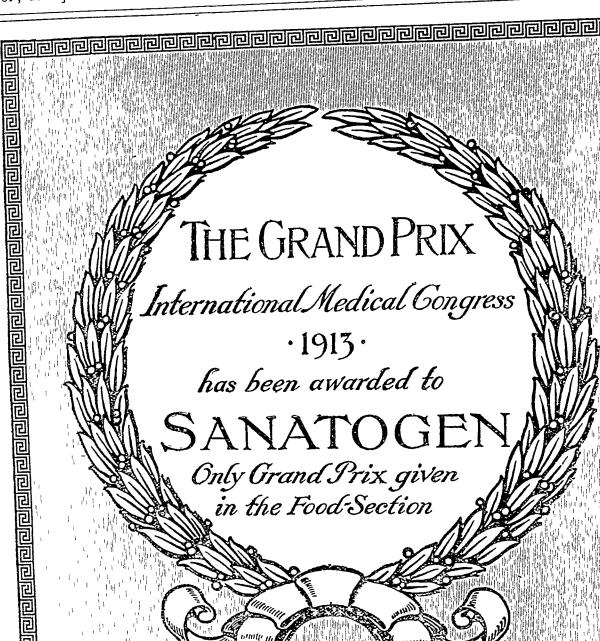
Present Condition—He is extremely weak, thin and animic, and has the appearance of being in continual pain. His urine is foul and contains pus. He has a small sinus opening at the apex of Scaipa's triangle on the front of the right thigh. A probe passes upwards along the sinus through the obturator foramen just behind the ascending ramus of the os public into the pelvis. Here it impinges on a stone. The length of the sinus is six or seven inches. A sound passed per urethram reveals the same stone lying in the bladder. Urine dribbles from the sinus.

Diagnosis — Doubtful There was certainly a stone in the bladder, but the urinary fistula taking such an unusual course could not be explained I suspected some extensive disease of the pelvis possibly tubercular.

Operation—Wishing to explore and drain the very foul bladder I removed the stone by lateral lithotomy instead of doing the usual lithologramy. It was about  $1\frac{1}{2}$  by 1" in size and consisted of layers of phosphates. In the centre was a small piece of bamboo shoot about  $1\frac{1}{4}$ " long and 3/16" thick, forming the nucleus. The inside of the bladder explored by the finger seemed to be a mass of fungating granulations coated with phosphates. This deposit was gently scraped away and the bladder well flushed out. The sinus was thoroughly scraped

Progress—The sinus in the thigh very soon healed and gave no further trouble. The perineal wound took a very long time to close, but the patient eventually left hospital 2½ months after the lithotomy in greatly improved health, passing clean urine per urethram and with the sinus and perineal wound both well healed

Further history—On careful questioning after the operation the patient said that he had fallen out of a tree and a piece of bamboo had peneti ited his thigh—It was pulled out at the time and the wound first healed and then swelled up and formed the abscess



N the food section at the International Medical Congress Sanatogen alone received the Grand Prix—the highest possible award

This fact speaks for itself Sanatogen's reputation, gained through many years of clinical service, is based on properties which have never been rivalled, such as, for instance, its unique blandness and sterility, its easy assimilability, and the fact that its phosphorus content is wholly absorbed

Samples and literature on application to A Wulfing & Co, 12, Chenies Street, London, W.C., manufacturers of Sanatogen, Formamint, Albulactin and Cystopurin

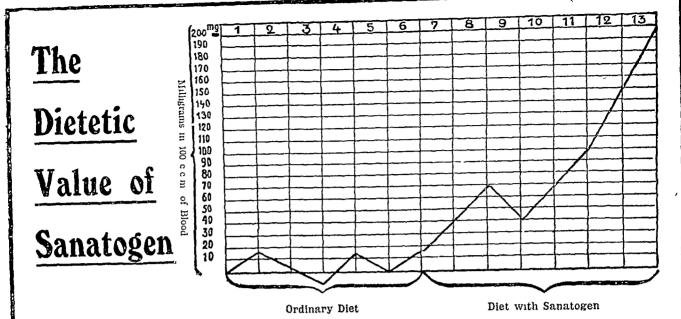
IIXXXI



ROCHE" DEPOTS—BOMBAY—KEMP & CO, Ltd., 7, Elphinstone Circle CALCUTTA—BATHCATE & CO, 19, Old Court House Street SMITH, STANISTREET & CO, 9, Dalhousie Square MADRAS—W E SMITH & CO, Ltd., Kardyl Bldgs, Mount Road RANGOON—E H De SOUSA & CO, 271, Dalhousie Street COLOMBO—CARCILLS, Ltd. HONGKONG—A S WATSON & CO, Ltd.



"ROCHL' DEPOTS - BOMBAY -KEMP & CO, Ltd, 7 Elphinstono Circle CALCUTTA -BATHCATE & CO, 19 Old Court House Street SMITH, STAHISTREET & CO, 9, Dalhousle Square MADRAS -W E SMITH & CO, Ltd, Kardyl Bidgs, Mount Road RANGOON-E H De SOUSA & CO, 271, Dalhousle Street COLOMBO.-CAPCILLS, Ltd HONGKONG -A 8 WATSOH & CO, Ltd

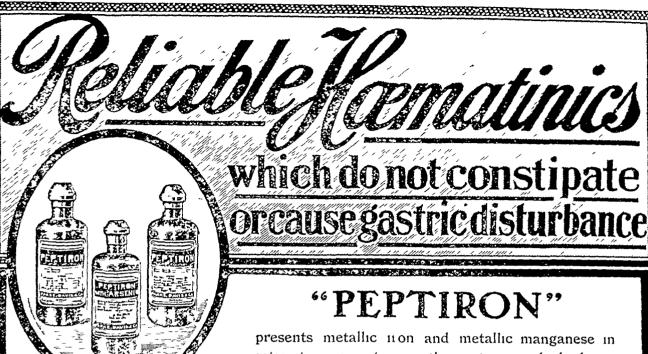


CAN the beneficial effects on nutrition noted by physicians during the administration of Sanatogen be in any way checked or measured? This question is answered the above diagram, which shows graphically the average proteid content of the blood-serum in a series of test cases before and after the administration of Sanatogen Details of the observations are contained in the British Medical Journal, Dec 10th, 1904 The method adopted was that of estimation of the refractive index of the blood as now employed in cases of heart, kidney and blood diseases to have been expected of physicians on the staff of the Royal University Clinic of Berlin, every source of fallacy was excluded with almost pedantic care Control experiments were made on the patients concerned for many days before the special observations were begun The treatment was intermitted to make certain that the results were due to the cause recorded Cases even slightly questionable were excluded

The normal proteid content being ascertained, Sanatogen was then given in amounts of 40 to 45 grms daily, this preparation being selected because of its high proteid contents, its special organic phosphate and its proved ease in assimilation An increase in the proteid content of the blood commenced almost at once, and, as indicated in the diagram, this progressed in a short time to a height never anticipated Besides being absorbed itself, the Sanatogen appeared to stimulate the absorption of proteids in the ordinary diet The observers who conducted these researches conclude that a diet containing large amounts of readily assimilable proteid. such as Sanatogen, will produce a marked increase in the proteid contents of the blood, and thus lead to a notable nutritive improvement

Samples of Sanatogen and Literature sent free to members of the Medical Profession on application to A Wulfing & Co, 12 Chenies Street, London, W C

# SANATOGEN



presents metallic non and metallic manganese in intimate association with peptones, which being readily assimilated act as carriers of the metals and afford the best possible assurance of their absorption

"PEPTIRON" acts as a stimulant to the blood-forming organs, and provides valuable tonic treatment in general debility, neurasthenia, malarial anæmia, Bright's disease, and convalescence from exhausting illness, also in amenorihaa neuralgia and dyspepsia, when these disorders depend upon poorness of blood

PIPTIRON' is much more palatable than the ordinary preparations of iron and does not injure the teeth

# PEPTIRON WITH ARSENIC

consists of 'Peptiion' with the addition of 1/50 grain of arsenic peptonate in each fluid drachin

In certain forms of blood dyscrasia this combination increases the hæmoglobin percentage and the number of erythrocytes more rapidly and reliably than "Peptiron' does. It is of special service in malarial hæmaturia and post-malarial anæmia, also in chronic forms of skin diseases, e.g. acnc, eczema, etc., and in neuralgia

These preparations are supplied in bottles of 4 and 16 fluid ounces

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# Indian Medical Gazette. OCTOBER.

## COMPETITION FOR THE I M. S

On 2nd August was published a list of the successful competitors at the last examination for admission to the I M. S, held in July 1913 Twelve vacancies were offered, and five of the candidates who won commissions, including the first three, were Indians A sixth candidate, the muth of the list, though he has a British name, got part of his medical education at Madras The first man hails from the Punjab, the second and the sixth from Calcutta, the third and the minth from Madias, the eighth from Bombay The Indian Medical Schools may be congratulated on the success of men who got most of then medical All, of course, hold British training in India qualifications in addition to those gained in India; and all, presumably, have undergone a further course of professional study at home

This, of course, is not the first time that an Indian has headed the list of successful competi-Admission to the I M S was first thrown open to all duly qualified British subjects by the India Act of 1853, and at the first competitive examination held under this Act, in January, 1855, an Indian Suijo Coomai Chuckeibutty (Surjya Kumai Chakiavaiti, as the name would nowadays be written), passed first This officer was one of the four Bengali students who were sent to England in 1848, under Surgeon Henry Hurry Goodeve, for a further course of medical study, after completing the Calcutta curriculum He took the M R C S in 1848 and the M B and M D of London in 1849, and from 1850 to 1854 served in Bengal, in the Uncovenanted In 1864 he was appointed Pio-Medical Service fessor of Materia Medica in the Calcutta Medical College, and ev office second Physician to the Medical College Hospital, and held these posts until his death, on furlough in London, on 29th September 1874

Half a century clapsed before another Indian passed first, when P B Bharucha headed the list in August 1910 In August 1909 an Indian, V B Gokhale had passed second

It is no cause for surprise that an Indian should stand first in this, or in any other, competitive examination. Indian students are by nature intelligent, they are also well capable of profiting by instruction, and they are certainly diligent. To

an Indian, it is much more important to gain a commission in the I M S than it is to a British student, who has also the R A M. C' and the Navy open to him, if he wishes to go in for one of the public services. On the other hand, the number of Indian competitors is usually less than those from the home medical schools

While it is no matter for wonder that an Indian should pass first, that the three first places should all be taken by Indians is something unprecedented. What is the cause which has brought about this result? It might be due to exceptional merit in the Indian candidates now successful, or it might be that the I M S offers less attraction to newly qualified men at home than it formerly did, or that, for any other cause, British candidates have fallen off in numbers, or in quality, or in both

If the results of recent examinations for the I. M S are compared with those of July 1913, we may do something towards getting an answer to the If we take the last twelve exams query above six years—we find that on several occasions twelve vacancies have been given, as now, some-The highest marks times more, nevei less obtained by the first man, on those twelve occasions has been 4120, the lowest 3447. Only once, in January 1912, have the numbers been less than on the present occasion The marks of the twelfth man have varied from 3554 to 2958, only once have they fallen below 3000, and never have they been so low as now Indeed once, in January 1908, the twelfth man had a higher total 3554, than the 3517 marks which were gained by the first man in July 1913

The marks for July 1913 and for the previous six years may be tabulated as follows —

Date	Number of	Number of	MA	RKS GAIN	FD
Date	1 1 Can	candi dates	Fust	Twelfth	Last
July 1907	14	33	4120	3319	3233
January 1008	16	58	3988	3554	3483
July "	20	47	3834	3316	3083
January 1909	12	32	4016	3188	3188
July "	21	48	3997	3366	3143
January 1910	13	34	3629	3112	3074
July "	15	36	3773	3206	3193
January 1911	14	26	3691	3035	2914
July ,,	12	28	3806	3	ĭ86
January 1912	12	38	3147	29	958
July "	12	31	3718	3	068
January 1913	12	28	3707	3	008
July "	12	33	3517	2	878
	1	1	1	1	

The number of candidates shewn is the number who sent in their names. The number who actually appear is always somewhat smaller, and the number who qualify somewhat smaller again

The number of candidates has varied from 58 to 26. In July 1913 there were 33, a number, a little larger than those entering for four out of the last five competitions. There was, therefore, no diminution in the number of candidates. But, if there was no falling off in numbers, the low marks scored appear to indicate a falling off in quality. What is the reason?

We may confidently assert that never before have the apparent conditions of service in the I M S. been so good as they now are detable improvements have been made of late years, in pay, leave, and pension. Ten years ago, in 1903-04, a small rise of pay was given to almost all 1anks With respect to leave, the giant of study leave has enabled the I M S. officer of the present day to refresh and extend his professional knowledge during leave given for that special purpose; whereas those of even fifteen years ago, if they wished to study in Europe, as most men did, had to spend for that purpose part of the furlough given, and required, for recreation and rest, and health Incidentally, a man on study leave has the opportunity of accelerating his promotion to Major, with the increased pay of that rank, by six months. The grant of combined leave in 1901 enables him, if he has privilege leave due, to take the first part of his furlough on full pay counting as service, formerly it was the rule rather than the exception for men going on furlough, when they could get it, to have three months' privilege leave to their credit, and to forfert that privilege leave without advantage to themselves As regards pension, a few years ago the twenty-year pension was considerably increased, from £365 to £400 a year, and in 1911 a graduated scale of pensions was granted, rising by regular annual increments with every year's service, from 17 to 30 years, a boon which had long been desired, instead of the pensions obtainable only at four fixed stages, 17, 20 25, and 30 years Promotion in some provinces has never, within living memory, been so rapid as it is now, though probably intending candidates do not consider this point, important as it is to men already in the service For rapid promotion to the administrative ranks means a rapid rise, in appointments if not in actual rank, all down the list.

The prospects and conditions of general practice at home, on the other hand, have probably never been so poor as they now are, for the last halfcentury at least There is, of course, plenty of room at the top. But that does not affect the newly qualified man, and will not do so for many years to come Most general practitioners, and such practitioners comprise the great majority of the profession, have suffered severely from the Insurance Act of 1912 The man who ran a club practice, and depended solely upon clubs for his living, has gained by the Act. He has as many patients as before, possibly more, and the rate paid by each has markedly increased. But the man whose practice was made up, wholly or largely, of patients of the lower middle class, paying small fees, has been very hard hit by the His private patients are now State patients, paying no fees, but a fixed small annual payment. In many cases, moreover, under the new conditions they are not his patients, but those of another man

The R A M C and the medical department of the Navy seem to have no difficulty in attracting a supply of candidates, satisfactory both in quality and in quantity. The same applies to the medical service of the Crown colonies, even West Africa, where the conditions of service have greatly improved of late years, seems to get suitable men without difficulty But Indian candidates are not eligible for the Navy and Army, and very few have gone in for the Colonial Service For the I. M S where they are eligible, they go The marks gained by the successful competitors at the last I M S examination are lower than usual But, if there had been no Indian candidates, the marks gained by the first man, the last, and by the intervening men, would have been very much lower than they actually are.

The cause of the falling off in the quality and quantity of British candidates for the I. M S would appear, then, to be some cause connected with India, and with India only, as the competition for the other medical services is not effected by it

The cause, it appears to us, can only be a general dislike and mistrust of the conditions of service in India at the present time. This dismiclination to accept service in India affects all the Indian services more or less. For many years past admission has been given, by one and the same examination, to the Home, Indian, and Colonial (Ceylon and Straits) Civil Services, and

for some years past it has been usual for the men at the top, to choose the Home rather than the Indian Service, to take a moderate certainty, a fauly well paid clerkship, with some chance of better things in the future, rather than the I C S with its certainty of good pay, and its great chances of advancement In other words, the modern candidate plays for safety The cause of this comparatively new development in British youth, we can only suppose to be dislike of the present day policy of the Indian Government The uniest in India, the treatment of that uniest by the authorities, and the political developments of the present day, have made men hesitate before embarking on an Indian career As regards the I M S. in spite of many improved conditions in recent years there are other causes Civil practice is not what it was, little money can be made in many stations, mofussil life is less attractive than it used to be; and discussions about the "Morley doctrine" of limiting the service, the talk of "independent" practitioners who were to be quasi government servants, the great difficulty of getting leave, and the pay which with the present raised prices all over the world is not attractive. These and other causes have, as was foreseen by many, affected recruiting in the schools causes are affecting and will affect other services in India, and it is one great task before the Royal Commission to devise means whereby the best men in the Empire are attracted to the Service of the Government of India \*

# THE INDIAN JOURNAL OF MEDICAL RESEARCH

We welcome the new Journal published under the auspices of the Indian Research Fund Association by Messis Thacker, Spink & Co It will replace that fine long list of publications known as "Scientific Memoirs" and also take the place of the little lamented "Paludism," whose feeble constitution never survived the early perils of infancy. The new Journal starts with a long and largely nominal Editorial Committee and we presume that the Secretary to the Sanitary Commissioner with the Government of India will be the actual Editor

The Journal is priced low, 6/- per annum, for 4 quarterly numbers

The first volume is very handsomely got up and admirably illustrated and contains a long list of valuable articles, many of them however appealing most to research workers and specialists. A useful account is given in an introduction of the scope and aims of the Indian Research Fund Association. As this association has funds at its disposal (witness the liberal sums granted for special work in the various provinces), we may expect it to be of great good, and we are well pleased to find that the following important subjects have been or are to be taken up this year dysentery, relapsing fever, quinine, bacteriological examination of water, cholera sera, and gotte

Turning to the volume itself we need not refer to them all, as the wide distribution of the new Journal renders such unnecessary For the nonspecialist, ie, the practising physician and surgeon, the articles of most interest are Major Greig's papers, read at Madras, on cholera carriers, etc., Capt. J. Cunningham's useful resumé of the bacteriology of dysentery, which also shows the great need of his own deputation to clear up the subject of this protean and deadly disease, Lt-Col Donovan's paper on kala-azar and Capt Patton's on the same subject Gilchist's highly technical paper on the hæmolytic action of quinine is very important in view of the prevalence in certain districts of Blackwater fever, and Capts Acton and Knowles have a very useful paper on latent malaria

The Journal has begun well and very creditably reflects the amount of good research work now being done in the various laboratories in India.

# Qurrent Topics.

## COLONEL CRAWFORD'S HISTORY OF THE IMS

We are glad to be able to announce that the long-looked forward to History of the Indian Medical Service, by Lt-Col D G Crawford, IMS (retd), is now in the press and may be expected to be published, by Messrs Thacker, Spink & Co., before the end of this year. It will be a big book, in two volumes, and with over 1,000 pages. The price will not be high as Lt-Col Crawford has generously decided that the price will be fixed so as just to cover the actual cost of publication. It will be illustrated, and among others will be a picture of the tomb of William Hamilton in St. John's Church, Calcutta, and a copy of Lady

<sup>\*</sup> A correspondent writes as follows—"The I M S is not popular in the schools, a good 'Locum' can get a guinea a day, an Assistant £200 or 300 a year. This coupled with innest in India is keeping men away from the service." He comments on the great number of Indian students of medicine now in Figland and hints at the exams being too easy, owing to so many rival corporations giving licenses, etc., to practise

Butler's great picture, "The Remnant of an Army," commemorating the return of Dr Brydon to Jalalabad, which is now in the Tate Gallery The following list of the Chapters will give our readers a very clear idea of the vast amount of interesting matter in this book -

The First Beginnings

European Surgeons in the Service of Oriental Potentates.

Surgeon-General John Woodall

Early History, the Islands, Amboyna The Legend of Gabriel Boughton

- Early History; Surat, Persia, Bombay, and the West
  - 7. Early History, Madias and the Coast
- Early History, Bengal and the Bay William Hamilton and the Embassy to Delhı.
  - The First Half of the Eighteenth Century. 10.

11 Holwell, and the Fall of Calcutta

- 12 William Fullerton, and the Patna Massacie.
  - 13 The Foundation of the Service
  - 14 Strength from time to time.
  - 15 The Double Commissions.
  - 16 Military and Civil
  - 17. Rank
  - 18. Pay
  - 19 Furlough and Leave
  - 20 Pensions
  - 21 The Funds
  - 22 Appointment to the Service Examinations.
  - 23 Administration, the Medical Boards
  - 24 The Sea Service
  - 25 Contracts and Trade
- 26 The Minor Medical Services, St. Helena, China, Prince of Wales Island, West Coast
- 27. The Uncovenanted and Subordinate Services.
  - 28 Surgeons as Civil and Political Officers
- Other Extra Professional Work, Exploration, Science, Philology, Literature
  - 30 Medical Officers employed in England
  - 31 After Retirement
  - 32. Wai Services
  - 33. Honours and Rewards
  - 34 Courts-Martial.
  - 35 The First Half of the Nineteenth Century
  - 36 The Mutiny
  - 37 The Crown succeeds the Company
  - 38 1865 to 1896
  - 39. The New Combined of General Service
  - 40 General Remarks
  - The Future 41.
  - 42Hospitals in India.
  - 43 Medical Education in India
- 44 Medical Societies and Medical Journalism ın India

We need hardly say that it is the duty of every man in the Service to possess a copy of this great book and the mess of every Indian Regiment should also obtain it The book we know is intensely interesting, and we hope Lt-Col.

Clawford will reap the reward of his lifelong labours into the history of the Service he belonged to for 30 years

#### LIBRARY OF KING GEORGE'S MEDICAL COLLEGE, LUCKNOW

Major W. Sflby, DSO, 1ROS, 1MS, the Principal of King George's Medical College, Lucknow, desires us to make it known that he is anxious to acquire back volumes of the Indian Medical Gazette, The Lancet, and the Butish Medical Journal, and asks medical men willing to dispose of such volumes to correspond with

#### SERO DIAGNOSIS IN INDIA.

WE here publish the first of a series of notes on the sero-diagnosis of syphilis in India from the pen of Lt-Col W D Sutherland, 1 MS, who, as is well known, is conducting a class in Calcutta on the biological blood tests. We think our readers will welcome these up to date notes on the newest methods of diagnosis -

I-ON THE "ANTIGEN" BEST FITTED FOR USE

"Till Wassermann reaction can be made quite trust worthy in Calcutta if a suitable antigen be used

Here there have been tried the following extracts -

- (1) Alcoholic Extract of feetal heart
- " buflalo's heart
- (2) (3) (4) gumea pig's heart 17 11 fowl's heart
- (5) Noguchi's (acetone insoluble) Extract of feetal heart
- " buflalo's (6) heart
- " gumea (7)
- pig's heart (8)
- " fowl's " Syphilitic (9)fœtal livei.

For the experiments the following precautions were taken, in order that the results might not be open to cavil

At least three known non syphilitic and three known syphilitic sera were used as controls, and the antigens used were, in each experiment, three 1-An antigen (alcoholic or Noguchi) which in a previous experiment had been found to give trustworthy results, 2-another antigen, also known to give reliable results, 3-an anti gen whose value was not previously known, but was to be determined

The results of careful experiments have shown that, without exception, the Noguchi antigens cannot be relied upon here for any length of time They may give good results for two or even three weeks, but the best of them fail after a few tests. It does not seem to make any difference whether they are prepared from feetal heart or any other heart. The alcoholic antigens are also apt to fail one at a pinch, but, so far as we have been able to ascertain, they are not nearly so apt to do so as are the Noguchi antigens. The alcoholic extract of feetal heart, prepared as under, has been found to be far and away the best, and most such extracts have been proved to be efficient after many weeks one has done good work for months

The feetal heart, washed free from blood, and with the fat removed is weighed It is then cut into small pieces and these are pounded into a paste with quartz sand in a mortar. The paste is then mixed with ten times the heart's weight of absolute alcohol. The mixture is thoroughly shaken for an hour, and then left to stand for 48 hours The clear supernatant fluid is then filtered through hard filter-paper and stored in the ice-chest

When required 1 cc of the extract is added to 4 cc of physiological salt solution. Of the resulting slightly milky fluid 02 cc is added to the contents of the tubes into each of which 075 cc of a 1 10 dilution of the

patient's sera and the control sera\* are put

I am unclined to believe that, here at least, it is essential to keep the alcoholic antigen away from the light"

### THE DANGER OF RUBBER GLOVES

THE following useful extract is taken from the Medl Review, Aug 1913, quoting from La Semaine It is worth noting by surgeons Medicale

"The more the methods of disinfection of the skin are plactised, the more do they carry the conviction of their ultimate insufficiency. There can be no absolute then ultimate insufficiency. There can be no absolute sterilisation of the skin in the sense in which we speak of sterrlised instruments or dressings. What happens in the most careful preparation of the skin of the patient or the hands of the surgeon is the destruction and removal of a considerable number of organisms situated on or near the surface, while those buried in the glands escape in greater or less degree the process of disinfection, and after a variable interval they emerge upon the prepared surface. The use of rubber gloves promotes this result by the perspiration of the hands induced by covering them with an impermeable tissue Though the gloves may be perfectly sterile and the hands as carefully prepared as if the surgeon intended to operate without them, their use shortens the interval during which the skin remains relatively uncontaminated. Thus a tear or puncture of a glove during the operation may permit the escape of perspiration which may infect the wound. It is better, therefore, to operate without gloves than to employ those which are not perfectly watertight. This opinion has been questioned by Ahlfeld, who found, with but one exception, that the interior of gloves were sterile. one exception, that the interior of gloves were sterile even after operations listing 1 to 2½ hours. In these cases the hands of the surgeon were dipped in alcohol after preparation and then dried, while the gloves were also sterilised dry

Hellendall and Fromme, investigating the question over a series of 90 major operations, found that the gloves of the surgeon contained liquid at the conclusion of the operation on 46 occasions, while those of the assistants were less frequently moist. This exudation was perceptible 20 minutes after the beginning of the operation, and varied in amount with the duration and complexity of the procedure, the temperature of the room, and the predisposition of the individual The quantity found sometimes amounted to several cc Cultures showed that this liquid contained 2, 3, even 10 times the number of organisms recoverable from the hand before putting on the glove, and in some cases more than the hand before preparation. The fewest organisms were found when the preparation of the hands included immersion in 70 per cent alcohol

These researches point to the importance of removing a rubber glove whenever a puncture or rent is discovered a rubber glove whenever a puncture or rent is discovered during an operation, the hand being again as carefully disinfected as at first. It has been suggested that wearing a thread glove over the hubber one lessens the risk of contamination, but this is not a sufficient safeguard. While good rubber gloves sterilised day, and applied after careful preparation of the hands. and applied after careful prepulation of the hands, including the use of alcohol, are of unquestionable utility, it is better to dispense with gloves entirely

than to use bad ones they are not only useless but harmful "

## THE INTERNATIONAL MEDICAL CONGRESS

Most of our readers will here read with interest the admirable synopsis of the proceedings of the 17th International Medical Congress held in London as reported in the British Medical

Journal of August 16th

It is satisfactory to see that I M S officers at home on leave and refried took their share Surgeon-General Sn Pardey in the work Lukis was everywhere and his name appears in many sections of the work of the Congress Ronald Ross introduced the subject of sanitary organisation in the tropics Colonel W G King was to the fore, but his resolution concerning the supposed subordination of sanitary to medical authority was not approved of Colonel Harris, CSI, FRCP, was present at many of the meetings Major Battye took part in the discussion on spinal analgesia Lt-Col R H Elliot enjoyed a ventable triumph in the all-day discussion on glaucoma, and Lt-Col H Herbert Major Glen took part in the same discussion Liston discussed plague and fleas Capt Chambers read a paper on enteric fever in the Indian Army Major Rost gave demonstration on leprosy and Lt -Col Alcock on entomology The meeting was a memorable one, and we are glad to see medical officers from India were well to the fore

We find the following in the Ophthalmoscope (July 1913) —

"A Government Order has recently been promulgated, the effect of which will be that in future officers of the Indian Medical Service will be allowed to undergo a three months' course of training in ophthalmic work at the Government Ophthalmic Hospital, Madras, an institution under the superintendentship of Col R H Elliot, IMS Officers must be specially selected by the Surgeon General Not more than two officers from mufassil stations shall be in attendance at the same time So far as possible, junior officers of the Indian Medical Service stationed at Madias shall undergo a course of training at the Ophthalmic Hospital without prejudice to their other duties. The Government also consider that selected Civil Assistant Surgeons should be given similar facilities for gaining a special knowledge The Government of India, when the of eye work arrangements are complete, will be asked to sanction to all officers selected for ophthalmic training the same concessions as to pay and allowances as are now granted to officers deputed for malaria training, including halting allowance, for the entire period of training Surgeon General W B Bannerman has taken a most prominent part in urging the reform now accomplished by the Government Order"

The Servian Government made the munificent offer for British Surgeons in the recent war of pay, 600 francs a month, say, about 350 rupees per mensem We wonder how many they got !

THI. Editor of The Hospital Assistant (Kolhapur ('ity) has made a spirited appeal for more support being given to his well managed and

<sup>\*</sup> As most of my readers will have guessed, the patient's seri and the control seri are when obtained heated to 56° (for half an hour to destroy their complement

interesting journal. I M S Officers who know the good work done by so many Sub-Assistant Surgeons are naturally interested in the success of this journal, and contributions from Civil Surgeons are requested by the Editor. It would be a good plan for Civil Surgeons to encourage the Sub-Assistant Surgeons to take notes of interesting cases, many of which would be with advantage published in the columns of the Hospital Assistant.

Owing to the generous response to Mr Austin Chamberlain's appeal for money, the London School of Tropical Medicine has arranged to extend the scope of its work. The new buildings will be ready by 1st October, special laboratories have been fitted up

During next session a new course in tropical sanitation and hygiene will be instituted, special attention being given to bacteriology and hygiene

Abundant resident accommodation has also been provided for students and 20 new furnished rooms have been added. When will millionaries in India come forward to help the new Tropical School at Calcutta. Is everything to be left to Government? Is Medical Education not as worthy to be endowed as other faculties?

## Reviews.

Dysenteries, their differentiation and treat ment—By Lieutenant Colonel L. Rogers, CIE, MD, IMS 1913 Oxford Medical Publications

A good book on the dysentenes has long been wanted, and we believe that this want will be well supplied by Lieutenant-Colonel Rogers' latest publication. It is a companion volume to his book on cholera

Lieutenant-Colonel Rogers' work on amounted dysentery and his wonderful discovery of the practical value of emetin are well known. In every medical journal testimony to the value of

emetin is being daily boine

The present volume will be much sought after by medical men in the tropics. Dysentery is after all the most efficiency and health destroying disease of the tropics and one the most rightly to be dreaded for its invaliding after effects. For some years past the question of differentiation between the two great types of this disease, the bacillary and the amount has been much to the fore and the importance of the difference has been emphasised by the great value of emetin in amount and its uselessness in the bacillary form

To turn however to the book—after a very interesting historical chapter there is one on epidemiology and the connection between the monsoon and the rise in dysentery cases is shown for the various provinces of India. The chapter of amæbæ, harmful and harmless is good, the chapter on pathological anatomy and the clinical

description are both excellent. Many will turn with special interest to Chapter VI on the treatment of amorbic dysentery, where the emetin "ipecac," and other methods are described and illustrative cases given.

It is well known that among Lieutenant-Colonel Rogers' many therapeutic triumphs his attack on liver abseess and its presuppurative state has been one of the most successful, and Chapter VII which deals with the remote complications is of special interest and value. It is practically an up-to-date revision of a similar chapter in Ferens in the Tropics, and contains a most complete account of the whole subject of causation, incidence and curative and preventive treatment of hepatitis and liver abscess.

The next four chapters are devoted to bacillary dysentery and must be said to be excellent, the pathological changes are admirably described, the clinical description is true and detailed, and the chapter on treatment practical and up-to-date, though even since this book went to press its indefatigable author has worked out another successful method in the use of albargin, about which we shall doubtless shortly hear more

The other dysenteries are discussed but are of minor importance, but the chapter on Hill Diarrhoa and on Sprue will be read with interest

We have read this book with profit It is emphatically a good book, clear, concise and practical. It is beautifully illustrated, we have never seen such admirable coloured illustrations of intestinal lesions are those given here from drawings of the author's cases in the Medical College, Calcutta. The book is emphatically one to possess and use and the already high reputation of the author as a scientific therapeutist and physician will be further enhanced by its publication

The Poisonous Terrestrial Snakes of India and Ceylon —By Major F. Wall, I M.s., C M.Z.s Bombay Natural History Society, 1913 Third Edition Price 3 rupees

WE gave a hearty welcome to this useful book on its first appearance and now gladly welcome its 3rd Edition. The book has been a very successful one, over 3,000 copies were sold of the first two editions.

Major Wall appeals in his preface for more information about bites by various snakes.

He writes as follows -

"To take examples, we have no single record of symptoms of the poisoning of the banded krait (Burgarus fasciotus), common as this snake is in Assam and Burmah Again, snakes so common as the black kraits (B lividus and niger) in Assam, as Callophis macclellandi in the Assam Hills and Eastern Himalayas, as the pit vipera Lachesis macrolepis, anamallensis and strigatus in the Southern Indian Hills, and L trigonocephalus in Ceylon should furnish many records which would be received with appreciation by the author, or by the Secretary of the Bombay Natural History Society Any information, however meagre, is worth reporting, and may prove useful and even a badly mutilated snake is capable of identification in competent hands'

#### SPECIAL ARTICLES

#### TROPICAL MEDICINE AT THE GHENT EXHIBITION

By C A GILL, DPH (Eng), DTM & H (Eng), CAPTAIN, IMS

Ir is probable that the person who said exhibitions were for amusement rather than instruction was not voicing solely his individual opinion And it must be admitted that few, except those possessed of unlimited leisure and a capacity for taking infinite pains, can hope to do justice to the opportunities afforded them in the palatial pavilions of an Exhibition Such being the case it behaves the ordinary mortal when he visits one of these institutions to exercise discretion and to choose for examination those things which seemeth to him good

Applying this process of reasoning to a visit to the Ghent Exhibition few pavilions will be found more worthy of a visit to those whose lot is cast in pleasant—and unpleas int—places in the tropics, than that containing the British Government Exhibit bearing on tropical diseases layman hailing from the East cannot fail to derive much useful information from even a cursory inspection of this exhibit, whilst to the medical expert the whole section is of unusual interest, for it is probable that no such complete exhibit dealing with tropical diseases has ever before been collected under one roof

The motif of the exhibit is no doubt to indicate the great advances that have been made in our knowledge of tropical diseases during the past decennium, but it also, incidentally, serves to indicite, mainly as the result of the discoveries of one master-mind—Sir Patrick Manson—the premier position occupied by Great Britain in the realms of tropical medicine A photograph of this great man -the Lister of Tromcal Medicine-appropriately enough finds a place in the exhibition—and underneath it might well have been placed the words that have been applied to him in a dedication by one of his colleagues -

"First he wroghte, and afterward he taughte But in his teching discreet and benigne"

That the advances made in our knowledge of tropical medicine have not been barren of practical results is illustrated, for example, by a graph showing the death rates and invaliding rates per 1,000 for the past ten years in British West Africa The former, it appears, has declined from 20 6 m 1903 to 12 4 m 1912, whilst the invalid ing rates during the same period have dropped from 651 to 282 per 1,000. Truly startling results Facts like these, which have then counterpart in other tropical countries, should cause those persons who adopt a despondent attitude towards suntary science in the tropics to give themselves furiously to think For figures such as those quoted above show that preventive medicine is not merely a tetish which it is meet to bow

the knee to-like the latest craze in dancingbut it is, if properly understood and applied, a hving reality which is able to effect a great saving in human lives—and to add vastly to the sum of human happiness

That sanitary science is not always taken seriously is illustrated by the story of the distinguished civil servant of the Crown, now retired, who was once heard to dispute with his expert adviser the significance to be attached to the results obtained by a chemical bacteriological analysis of a drinking water, C'est magnifique, mais ce n'est pas la guerre

With this digression it is now proposed to deal briefly with some of the exhibits illustrating the pathology of the more common tropical diseases

The subject of Malaria, as might be anticipated, is dealt with fully. Large models of an anopheline and culicine mosquito accurately display the external anatomy of these insects, and even a child would quickly learn to discern from their respective attitudes whilst at rest how the mulana carrying anopheline may be distinguished from the harmless culicine preparations illustrate the character of their But perhaps the most striking exhibit under this head is a beautiful series of way models showing the development of the malarial priasite both in the red blood corpuscles of man and in the tissues of the mosquito

Of classical interest, too, is Sn Ronald Ross's manuscript in which he first described the development of proteosoma in birds and thus by analogy established the life-cycle of the malarial parasite

Anti-malarral measures are displayed by means of photographs, drigrams and models prophylaxis, screening, dramage and segregation of Europeans all come in for notice In regard to screening some cabins arranged on the "Yarrow System " are shown They appear, though small, to be of undoubted efficiency, but the feeling to which they give use of being "cabined, cubbed and confined" would probably cause the occupant during a tropical night to prefer the attentions of mosquitoes to the doubtful luxury of a sleep in such restricted quarters

A small but important point appears to have been overlooked in connection with some mosquito cuitains, they are made to reach only to the level of the bedstead, whilst it is essential that they should be long enough to enable them to be tucked in all round under the mattress interesting exhibit is a model of a native village before and after it has been improved in accord-

ance with modern hygienic principles

It all looks so simple! A general cleansing of the villige, the levelling of the bed of a watercourse, the protection of a well or two and a few holes knocked in the walls of the diminutive One feels almost compelled to ask, if these simple measures are all that is required to produce results so beneficent to the human race, why are they not more frequently applied? Or to quote the historic query of the late King Edward,

used in reference to diseases associated with insanitary conditions, "If preventible why not prevented?"

Alas, if man and his belongings were only half as easy to deal with as his Laliputian prototypes in wax and clay the lot of the sanitarian in the

tropics would indeed be a happy one

The exhibit bearing on plaque is of more particular interest to the Anglo-Indian since it deals largely with the disease in India work of the Plague Research Commission, with which the names of the late Major G Lamb, IMS, and Major Glen Liston, CIE, IMS, are so honourably associated, comes in for full notice In this connexion, it may be mentioned, there is on view an exact copy of the cages used by the Commission in one of the experiments by means of which they succeeded in establishing the truth of the int-flea theory of the spread of plague will be recollected that rats were placed in cages similar in all respects except that in one set the rats were surrounded with a liver of "tanglefoot " When these cages were placed in plague infected houses it was found that in no instance did the rats surrounded by "tangle-foot" (across which fleas were unable to jump) contract the disease, whilst in the cages in which the rats were not so protected the animal became infected in 24 per cent of cases

The various fleas concerned in the spread of plague are exhibited under microscopes whilst stuffed specimens of plague-rats and animals known to be concerned in the spread of this disease are also shown Amongst the latter may be mentioned a fine specimen of the Tarbigan (Arctomys bobac) the animal which achieved an uneviable notoriety as the supposed cause of the great epidemic of pneumonic plague in Manchuria In connexion with anti-plague measures the process by means of which plague vaccine is prepared at the Bombay Bacteriological Laboratory is fully illustrated, as well as the procedure of anti-plague inoculation in vogue amongst plague

medical officers in Indian villages.

An ominous silence is observed towards other anti-plague measures, such as rat destruction and disinfection, which perhaps suggests that in the opinion of those responsible for this exhibit these measures, though of undoubted utility in certain cucumstances, in the present state of our knowledge and with the present means at our disposal, are not considered suitable for general applica-On the other hand, models of the Sanitary Chawls in Bombay and the improvements effected therein, under the auspices of the Bombay Improvement Trust, indicate that attention to General Sanitation is not to be neglected in systematic efforts to eradicate plague and it might be added cholera, tuberculosis, dysentery and many other diseases

Another exhibit which appears to indicate both our present impotence in the face of plague epidemics and the manner in which one Government endeavours to discharge—more or less vicariously

—its duty to its plague-stricken populace is that which illustrates the working of the peripatetic civil dispensaries now in operation in certain provinces of India

Trypanosomiasis and Sleeping Sickness, the latter being merely the terminal stage of the former, is accorded a prominent position owing no doubt to its great and mereasing importance as a cause of mortality in our African colonies

The protozoal parasite, Trypanosoma gambiense,—the cause of the disease is shown by means of a beautiful wax model, the work of Mi A S E Feisi Another model by the same artist illustrates the characteristic rash of trypanosomiasis fever as seen in an European. As in the case of malaria the 'carrier' of the disease is exhibited both by means of large models as well as by actual specimens of the insects concerned—Glossina palpalis and G moisitans

The 'reservoir' of the disease, ie, the means by which infection of the fly is kept up even in the absence of min, comprises a formidable group of animals, specimens of which are lent by the British Museum. It will suffice to mention the kada, water-hog, harte-beest, various species of antelopes, the spotted hymna and the baboon. In these animals, unfortunately for man, the parasite causes no ill-effects so that they may continue to spread the disease for the full term of their natural lives. It is for this reason that a somewhat melancholy interest attaches to them, for the question of their wholesale destruction is at present under consideration.

Let us fervently hope that in any case of uncertainty the animals will be given the benefit of the doubt. Until recently, it was thought that there was only one species of trypanosome and one 'carrier' concerned in human pathology, but recent research, tends to show that there are other species of human trypanosomes and, moreover, that there are other 'carriers' of the disease

besides the dicaded tse-tse flies

The exhibit devoted to Beri-ben is not particularly alluminating since it consists chiefly of

cularly illuminating since it consists chiefly of various samples of rice, both 'polished' and 'unpolished,' together with samples of the all

important 'vitamine'—derived from the pericarp

of this food grain

Pellagia is not illustrated, but one imagines that if it had been, even a year ago, the exhibit would have consisted chiefly of samples of maire in various stages of deterioration. There are many similarities between pellagra and beri-beriand one of them was, until lately, the fact that the one was supposed to be induced by maize and In the case of pellagia the the other by rice maize theory was held in spite of the fact that there was no correlation between the distribution of maize eating races and the endemic areas of pellagia, this probably on the principle that if the facts did not fit the theory so much the worse Beating in mind the history of for the facts pellagia one is tempted to inquire if there is a strict correlation between the endemic areas of

beri-bein and the geographical distribution of those races whose sole article of diet is 'polished'

Enteric fever, though not strictly or even chiefly a tropical disease, is included in the exhibit probably with a view of demonstrating its marked decrease in prevalence during recent years in the Butish Aimy in India We are reminded that this excellent state of affairs is largely the result of increased attention to sanitation in Indian Cantonments combined with the persistent advocacy of that form of prophylactic inoculation with which the honoured name of Sii William Leishman is so closely associated

Some diagrams, particularly interesting to the Anglo-Indian, illustrate the manner in which the germs of enteric fever may gain access to the food of man as the result of the ignorance or carelessness of the Indian servant combined with the neglect, on the part of his master, of the elementary principles of domestic hygiene

But dust, flies and dut are also frequently responsible for the spread of cholera and dysentery If these three and malarra—all preventable diseases—could be removed from the category of common tropical diseases—such places as Calcutta and the Gold Coast would be in a fair

way of becoming health resorts

Under the head of cholera the seal of official recognition is placed upon Leonard Rogers' method of the treatment of cholera by means of hypertonic saline infusions Another exhibit appears to show that in the disinfection of wells with potassium permanganate, it is necessary to add a sufficient quantity of the salt to render the water permanently of a bright pink colour ordinarily practised in India this method of disinfecting wells cannot, therefore, be described as thoroughly reliable

Kala-azar-and Oriental-or as it is better termed tropical-sore are dealt with under the title of Leishmaniasis Cimer notundatus is exhibited as the suspected 'carrier' of the former, and cimea lectularius of sore, though on what grounds the latter insect is suspected is not clear Recent research tends to show that the infantile form of Kala-azar, prevalent along the Mediterranean littoral, as well as the form found in the Sudan, are closely allied to Indian kala-azai In these encumstances a photograph taken in Tunis showing a child and a dog both suffering from infantile kala-azar is The carrier in this case is believed to have been the dog-flea, Ctenocephalus servati-Dogs have not been found to suffer from hala-nzar in India, but in view of the very definite occurrence of canine kala-azar in Tunis and other places the expediency of fresh search being made amongst the domestic animals of India appears to be indicated

Anlylostomiasie The hook-worm disease of America so named from the bend made by the head of the worm on its body—is illustrated by meams of models and specimens of the Anlylostomum duodenale and its cousin Necator Americanus

The manner in which the disease is usually spread, as the result of crude or defective sanitary arrangements is well shown by means of a section through a primitive earth latrine preparations, pathological specimens, photographs and diagrams indicate both the widespread nature of this disease in the tropics and its direct and indirect influence as a cause of mortality Under the heading Filamasis the pathological lesions due to Filaiia Banciosti, Filaiia Medinensis, and Filaria Loa are illustrated together with the life-history of these nematode worms In connexion with the first a series of photographs illustrates the well-known condition of elephan-In addition specimens of the various species of mosquitoes by means of which this disease is transmitted are on view, together with some drawings made from actual specimens showing how the filmial embyros develop in the thorrere muscles of the mosquito and finally make then way to its proboscis in readiness to enter the human host

The life-history of F Medinensis is illustrated by means of a model showing the adult worm 'presenting' in the centre of a superficial ulcer on the human foot The model is extremely natural, though perhaps the worm appears a

trifle stouter than is usually the case

Specimens of the intermediate host of this worm—certain species of the genus Cyclops in the body of which the parasite must undergo development before infection of man is possible, are also shown together with a preparation in which two larval guinea-worms may actually be seen inside the body of the little ciustacean Filana Loa, the worm which causes in West Africa the ephemeral tumours called "Calabar swellings" is also shown in its adult stage Its life-history has not yet been completely worked out but its 'carriers'—long suspected have quite recently been proved by Di R. T Leiper to be two gad-flies - Chrysops Sitacea and Chrysops Dimidiata

It is characteristic of the care and thoroughness with which this whole exhibit has been prepared (chiefly, it is understood, by the London and Liverpool Schools of Tiopical Medicine) that specimens of these insects are exhibited in their

appropriate place

In conclusion, it may be said that two main impressions emerge as the result of even a cursory glance at the wonders of tropical medicine, as exemplified at this Exhibition

In the first place, it emphasises to an extent not perhaps appreciated formerly the paramount importance of a knowledge of natural history and natural science in the study of tropical Incidentally one comes to realise the wonderful complexity of Nature and to see that if to man belongs the first place in the universe he nevertheless serves to provide the proper environment and pabulum for a whole

host of beings who occupy a very humble position in the scheme of Nature Secondly the lesson which this exhibit more particularly teaches is that if the tropics be here to many evils unknown in cooler climes these can be mitigated or prevented by measures more or less simple, and, for the most part, within the reach of all. The situation may be well summed up—and this niticle concluded—by quoting Tennyson's words—

"Follow light and do the right For man can half control his doom"

#### $\Pi$

#### DENGUE

The following admirable account of the much discussed Dengue is taken from a summary by Di Harald Seidelin in the Yellow Fever Bureau Bulletin (Vol. 11, 4th April 1913). As this is an up-to-date description of this widespread disease we think it well worth to reproduce liberal extracts from it for the benefit of our readers—

Synonyms \*-Dengue fever, dandy fever, broken

wing, break-bone fever, break heart fever

The word dengue means, in Spanish, affectation, and corresponds thus very well to many of the other names which have, in various languages, been given to the disease. The natural explanation of the term seems, therefore, to be that it has been introduced into other languages from Spanish, which transition would very easily have taken place, considering that Spain was the first country in Europe in which dengue was observed

Definition —Dengue is an acute februle disease of short duration and of comparatively being character, produced by a parasite which is probably an inhabitant of the blood, and transmitted from one individual to another

by a mosquito

This definition is vague, and does not sufficiently characterize the disease, neither scientifically nor for practical purposes. It is, in fact, at the present time imposssible to determine exactly the morbid entity which really corresponds to the name of dengue Several diseases are, in one or several particulars, so similar to dengue that it is a matter of serious discussion whether they are closely related to it or even identical with it. The two diseases which have in later years occupied the most prominent position in this discussion are pappataci fever and seven day fever. Some twenty years ago, when pappataci fever was practically unknown in the scientific world, and seven day fever had not yet been described, a similar discussion took place with regard to influenza and dengue. But Leichtenstein, and others, pointed out the essential differences between these two diseases, and at the present time it is generally admitted that they are totally different. The discovery of specific micro organisms (Bacillus influenza, Micrococcus catarrhalis) has contributed to make a sharper definition of influenza possible

With regard to pappataci fever, it would likewise appear that the question has now been finally solved in favour of its separation from dengue. The pathogenic parasite is unknown in both diseases, or, at any rate, unknown in the case of pappataci fever and not known with certainty in that of dengue, but it seems well established that they are transmitted by different insects. The transmission of pappataci fever by sand-flies is considered proved beyond doubt, and the theory of transmission of dengue by mosquitoes is supported by

\* Chiefly after van der Burg Das Dengue-Fieber, in Mense's 'Handbuch der Tropenkranheiten,' Vol II very good evidence, although it has not yet met with universal recognition

The most important question which at the present time has to be discussed in connection with the nature of dengue is that of its possible identity with the so called seven day fever described by Rogers. This discuss is endemic in talcutta, and is considered by Rogers to be essentially different from dengue, but a number of other authors, writing subsequently to the appearance of Rogers' description, maintain that it is simply an endemic form of dengue. As the pathogenic micro organism is not known with certainty in any of the two diseases, and as the mode of transmission has not been fully investigated in seven day fever, the discussion has to deal chiefly with the clinical and epidemiological characters. Rogers has compiled the following table in order to show the differences between dengue and seven day fever

	Devent	SPAPA DAY LEVER
Prevalence	At long intervals in epi demic form attacking a large proportion of residents	Annually in spoin die form
Distribution	Specially attacks coast towns, but spieads far inland	Only known near the coast, so far
Race incidence	Europeans and natives equally attacked	Very common in Europeans, com paratively rare in natives
Sersonal inci dence	Mostly in hot months, but may pierul in cold season (1872)	Prevals in hot and rains seasons only
Relapses	Very common in same year as first attack	Rule, and not in same year as first attack
Pains	Very severe and break bone in character	Moderately severe, as in influence, and not of break bone character
Joint symp	Very common and characteristic	Absent, or only present as slight pain
Convilescence	Very tedious, listing one to three months, with persistent joint prins	Rapid No after joint pains
Fevei	Lasts two or three days, falling to normal with crisis Occasionally very short secondary rise Markedly remittent	more days with typical saddle back temission to
Pulse	Rapid	Slow, especially in terminal rise

It is, however, very difficult to bring diagnostic rules in accordance with this table. If we attempt to apply the characters of the table to recently described outbreaks of dengue, the results will be found to be self contradictory. In some cases Rogers would probably say that the disease in question may not have been dengue at all, but seven day fever, as he has done in the case of the description by Ashburn and Craig of dengue in the Philippine Islands. But even admitting this possibility, the difficulty has not been solved, it will be found that the disease, as described recently by various authors, cannot be brought under any of the two headings in Rogers' table.

The epidemic in Calcutta in 1912 has been described by Hossack and by Smith, both authors believe in the identity of dengue and seven day fever, but differ con

siderably from each other in the descriptions of the symptoms. This lack of accord may be taken to show that the clinical picture varies considerably, in this as in most other diseases. The fever lasted frequently only three days, according to Hossack, but in Smith's experience its usual duration was five to seven days, and a typical saddle-back type of the temperature curve was of common occurrence. The pulse rate was low, according to Hossack. In Smith's cases, pains (articular?) were a prominent feature. Both authors are strongly of opinion that the disease was dengue, but it must be admitted that it shows perhaps even more resemblance to seven-day fever, according to the symptoms.

If we consider scriatim the characters said by Rogeis to be of importance for the distinction of seven-day fever from dengue, we will find that the specific value of nearly every one of them has been disputed by one or several authors

The prevalence is said to be epidemic in dengue, long intervals intervening between two epidemics, seven day fever is described as endemic. This is contradicted by various Indian authors, who maintain that the two diseases are identical, and especially by Hossack, who points out that it is well known from other infections that a disease may well be at home endemically in a certain locality, and nevertheless occasionally burst forward in epidemic outbreaks. Fooks believes that three day fever and seven day fever which he considers identical with dengue, occur both endemically and epidemically in the Punjab.

The distribution is said by Rogers to be different, seven day fever occurring only in coast towns, but dengue also inlard. He does not, however, lay much stress on this point, stating that seven day fever is 'only known near coast, so far'. Later on he mentions, however, that he has received typical seven-day fever charts from cases observed in the Punjab. It would appear that several inland outbreaks—for instance, the one in Jerusalem, and that described from Nowshera, by Wimberley—show more resemblance in the clinical symptoms to seven day fever than to dengue. It may also be recalled that dengue was by Hirsch and Leichtenstern, and other earlier authors, regarded as a disease of the sea coasts and river banks, just as jellow fever was

Race immunity cannot be considered an absolute characteristic of seven day fever Race immunity means practically, as far as it is known from the studies on malaria, yellow fever, and other tropical diseases, immunity acquired through unrecognized infections. Also in dengue has race-immunity—absolute or relative—been mentioned by Stitt and by Vassal On the other hand, Munro reports a considerable number of cases closely corresponding to Rogers' seven-day fever type in natives of India

Seasonal prevalence is, so far, perhaps more pronounced in seven day fever than in dengue, but also the latter disease is frequently said to become extinct spontaneously in autumn or early winter. According to Clayton, however, no such thing as seasonal prevalence would appear to exist in seven day fever, outbreaks having been observed both in summer, autumn, winter and

Relapses are, according to many authors, not uncommon in dengue, with regard to seven-day fever, Megaw has suffered from this disease twice with a year's interval. That relapses should be very common in the same year as first attack, in dengue, is denied by virous observers.

The pains are said by Rogers to be very severe, and of 'break bone' character in dengue, but moderate in seven-day fever. Severe pains, of course, belong to the classical picture of dengue, but in recent descriptions pains are often said to be moderate. Thus Masterman gives it as a symptom of diagnostic value that the pains are less severe in dengue than in influenza.

Joint symptoms are, according to Rogers, common and characteristic in dengue. In most modern descriptions

it is pointed out that the so called articular pains in dengue are, as a matter of fact, usually juxta articular, being localized either to muscles or to tendinous insertions, and stress is laid upon the absence of other signs of affection of the joints, such as swelling, etc

Convalescence is usually prolonged in dengue, but

even this is not a constant feature

The duration of the fever in dengue is by Leichtenstein stated to three days, but he, as well as other observers, describes a secondary rise, not always very short. More stress is laid upon the constant occurrence of this secondary rise in recent observations and the fever is even by some authors described as lasting about a week, with a more or less deed remission. In fact, some of the temperature charts published from dengue cases are almost identical with typical charts from Rogers' sevenday fiver

The pulse is usually described as rapid in dengue, but slow pulse rates have been observed in dengue, both in India, Australia, the Philippine Islands, and Cuba

Thus, seven day ferer cannot be differentiated from dengue by any single pathognomonic symptom, and a comparative study of records of the two diseases shows overlapping of the symptoms to an extent which seems very suggestive of their identity

McCarrison's three day fever seems, according to the observations of Megaw and of Fooks, to be intimately related to seven-day fever, and thus probably also to dengue

Another disease which must be particularly referred to in this discussion is the six day fever which Deeks has observed in Panama. He is inclined to believe that this fever is identical with Rogers' disease, and his description fully supports this view. Thus, to discuss the possible relationship of this disease to dengue would be a repetition of the pieceding remarks. Deeks is of opinion that six-day fever is distinct from dengue

Geographical distribution — Dengue is, and has always been, limited to tropical and sub tropical countries, with occasional invasions of the temperate zones in exceptionally hot summers. Inside these limits it is decidedly cosmopolitan. The southern European countries, tropical and sub tropical parts of Asia, Australia, North and South America, and East and West Africa, all have been visited by more or less extensive outbreaks of dengue

In the case of dengue it is impossible to distinguish with any degree of certainty between endemic areas and areas of epidemic occurrence, as is so readily done in yellow fever. Mild forms of dengue do not attract the attention of the public, nor of medical men, as long as they do not become unduly common, and sporadic cases are probably overlooked in many places. If seven day fever is identical with dengue, then the principal endemic foci are evidently Calcutta and other parts of India

Dengue was by earlier authors regarded as a disease exclusively of the coast cities, but it is now known to occur even far inland

Leichtenstern states that dengue exceptionally, in a particularly hot summer, occurred in the Lebanon up till about 4,500 feet above sea level, but otherwise it is undoubtedly a disease of the lowlands, higher lying places being protected by their cooler climate. McCarrison has observed in Chitral three day fever, which with some degree of probability may be considered a form of dengue, at an altitude of about 6,500 ft. The absence of dengue from higher altitudes corresponds to its absence from the temperate zones.

Etiology — The pathogenic organism of dengue is not known with certainty As early as 1873 and 1886, blood inhabiting organisms were described by Cunningham and Charles, and by Laughlin, respectively Later on, Graham, in 1902 and 1903, and Eberle, in 1904, have described intracorpuscular and free elements in the blood, which they regarded as parasites Graham's observations were confirmed by Ardati in 1910 According to these two authors the parasites are fairly large, motile, unpigmented (Graham), or slightly pigmented

(Ardati), not stunable (Graham), or not intensely strining (Ardati)

Ashburn and Cruig also experimented with Culer fatinans, but leave the question open whether other mosquitæs might as well serve as transmitters. These investigators experimented, as far as it can be gathered from their report, at Fort McKinley, which was heavily infected at that time

It is unquestionable that Graham first established the mosquito transmission theory in dengue, and supported it by very good evidence. It is unfortunate that the account of his experiments is somewhat summary, but it appears that in the last two experiments sufficient safeguards were taken against the possibility of casual infection. In fact, it would appear that he proved his theory as far as absolute proof is obtainable in such matters. It is, however, remarkable how little attention has been paid to Graham's work, even in the literature from recent years.

Graham is of opinion that the dengue parasite under goes a development in the mosquito, and states that he has produced infection by injecting an emulsion of salivary glands of a mosquito infected twenty seven days previously. He gives no details with regard to the intervening period in the transmission experiments, but evidently believes the evolution to be of very short duration, as he describes 'spores' in the salivary glands of mosquites forty-eight hours after the infecting bite Ashburn and Craig are inclined to the belief that the transmission is a purely mechanical act, if the parasite should undergo an evolution in the body of the mosquito it must be a very short one, as the intervening period in their one positive experiment was only of two days' duration

The distribution of dengue would correspond well to the universal prevalence of *C* fatigans in warmer countries, but equally well to that of Stegomyra fasciata, and it has been suggested by Legendre that the latter mosquito might be the most important carrier in dengue

Epidemiology and general pathology—Most of the questions belonging to this section have already been discussed under the foregoing headings. The life habits of C fatigans explain the seasonal prevalence of dengue, as well as its geographical distribution, and also the observation which has been reported by various authors that infection seems to take place chiefly or exclusively during the night

The explosive character of epidemic outbreaks which has always been regarded as a peculiar feature of dengue, is not exactly what we would expect in an insect borne disease, but it might be explained, where mosquitæs are abundant, if the transmission is of a mechanical nature Many epidemics have been remarkably extensive, almost the whole population of a town being attacked

The peculiar way of spreading from barrack to barrack, which has been described by Ashburn and Craig in the case of the Fort McKinley outbreak, would correspond well to transmission by insects

Nothing definite is known about the infective period of the blood in dengue. By some authors the later period of the disease is considered the most dangerous with regard to transmission.

Considering the lack of knowledge of the parasite, and also of the anatomical lesions, it is only natural that nothing is known with regard to the mechanism of the production of the symptoms

Immunity—Some authors are of opinion that an attack of dengue leaves little or no immunity, whilst others speak of a well-established and more or less persistent immunity. Repeated attacks during one and the same outbreak have often been rejoited, on the other hand, there seems to be reliable evidence which shows that one attack has protected an individual, both during the same and later outbreaks, even for many years

Pathological Irsions -No specific lesions have been described Uncomplicated cases are apparently never fatal

Incubation —According to chinical observation the length of the incubation period varies from a few hours to several weeks. Pulle gives, from the observation of a sharply circumscribed outbreak, 10 hours as a minimum and 39 days as a maximum period of incubation. The Brisbane report gives apparently reliable data from several cases, in a few the incubation period seems to have been less than 48 hours and in one case less than 24 hours, on the other hand, in one case it must have been at least three days. In Graham's experiments the incubation was from three to six days, and in those of Ashburn and Craig it varied between two and five days, the average being three days and fourteen hours.

Symptomatology —Considerable variation is observed, with regard to the individual symptoms, during one and the same outbreak and, even more, when comparing different epidemics

Most authorities describe a sudden onset, often with a chill or rigor, but a more gradual beginning is also observed, either in isolated cases, or in certain out breaks. Prodromal symptoms are not common, but in some cases headache and general malaise precede the actual declaration of the illness by several hours or a whole day. One experimental case, published by Ashbura and Craig, is of considerable interest, the patient had a rise of temperature before he complained of any symptom.

There is always fever from the beginning, but the flist symptom which attracts the attention of the patient is often pain, which may be so intense and sudden that the patient is interrupted in his work and unable to move This 'diamatic' onset, which appears to have been not uncommon in some earlier epidemics, is, however, rarely mentioned by recent authors. The pain may start in any part of the body, usually in one of the extremities, but it soon spreads and febrile symptoms soon develop

The temperature rises quickly to about 39°C (102°F), but may rise considerably higher, already in this period. The fever remains more or less continuous, or with slight morning remissions, for one, two or three days, then the temperature usually falls to normal, or nearly so, and becomes stationary for two or three days. A secondary rise takes place on the fourth, fifth, or sixth day, this phase of the fever lasting for one or several days, or only for a few hours, secondary fever of more than a few days' duration is probably a sign of some complication or other. In some cases the initial fever is higher than the secondary one, in other cases the inverse condition is observed. Hyperpyrexia has been observed, exceeding 42°C (108 109°F)

This recurrent form probably represents the typical fever in dengue, but great variations occur. The fever may last a few days only, on the other hand, it may be continuous, or more or less remittent for a week, the so called 'saddle-back' type, with initial and secondary fever of about the same height and duration, and a fairly deep intervening remission, is not uncommon. Short fevers are easily explained as abortive forms, which may occur in any infection, but the more continuous forms cannot be fully explained, as long as the pathological physiology of dengue is so imperfectly understood. The fall of the temperature generally takes the form of a lysis, but a sudden, critical drop may occur, accompanied by profuse sweating.

The pulse is variously described, a somewhat low

pulse rate is probably the rule

Other febrile symptoms are often pronounced, such as headache, congestion of the face, and uneasiness. The headache is often orbital, and increased by movements of the eyeballs

Muscular pains are very common, and so are pains which are commonly referred to as articular, but most recent observers are agreed that these pains are usually juxta-articular, being localized either in the adjoining muscles or in tendinous insertions Exudation and other objective signs of inflammation of joints are

decidedly raie, and muscular swellings have apparently

not been described

The pains, whether muscular, tendino-periosteal, or articular, may occur in any part of the body is probably constant, and one or more of the extremities are usually affected. The pains are often extremely severe, partially or completely immobilizing the patient

Cutaneous phenomena are common and important Ar initial rash is usually observed, but has apparently been absent, not only in single cases but in several outbreaks It is most frequently described as a diffuse hyperæmia, but is sometimes said to be measles like It is visible especially on the face and extremities. It soon fades and is probably often overlooked At the time of the secondary rise of temperature a papular, scarlatiniform or measles-like rash appears, which is accompanied by itching and followed by desquamation More exceptionally it presents the characters of an urticarial eruption, and in very rare cases it may be hæmori hagic, pur pura-like The rash is very irregularly hæmorihagic, puipuia-like distributed, and may be limited to small, circumscribed patches It remains visible for one or two days Desquamation may be very scanty, but also occasionally as pronounced as in well characterized cases of scarlatina Cutaneous hyperæsthesia is seen in some cases, especially during convalescence

The circulatory system is not severely affected The blood shows little alteration, except in the leucocyte count A slight, or well-pronounced, leuco penia is the rule and, perhaps, a constant character

The respiratory apparatus is but little affected

The digestive tract is always affected, but seldom The tongue is coated with a whitish fui, but tip and edges often remain red, and in many cases the tongue cleans itself later on in the disease is constant, and vomiting not uncommon, epigastic pain is often observed, and abdominal pain may occur even simulating appendicitis

The course of an attack of dengue is often divided into periods initial fever, intermittent stage, secondary fever, stage of desquamation and convalescence It must, however, be remembered that these stages are by no means always well defined, and that one or more may

be entirely missing

The most typical attacks usually occur in vigorous adults, whilst mild and atypical cases are often seen in

children

Mortality —In most outbreaks the mortality has been been low Various reports give mortalities of 1 out of 4,000, 7,000, or 10,000 cases, and in several epidemics no fatal cases are recorded. But in a few outbreaks higher mortalities have been observed, as 4 per 1,000 or even up till 10 or 20 per 1000

Most fatal cases have occurred in children, or in old or weakly individuals It seems probable that dengue is never fatal per se, complications have generally been

found to be responsible for the fatal issue

### ANNUAL REPORTS

### HOSPITALS, PUNJAB

This report was submitted by Colonel Bamber, wio, ims, the Inspector-General We make the following extracts -

In the Government Resolution on the report the following occurs

"A striking proof of the growing utility of the dispen saues is that while the population of the province has not increased since 1901, the number of operations performed in 1912 is 56 per cent higher than the werage of the three years ending 1901 The deathrite was 22 as compared with an average for those years of 17 Last year the rate was 18 The slight use may possibly indicate an increasing readiness to place des perate cases in the hands of our surgeons

Lt Col Smith, Civil Surgeon of Amiitsar, Sub Assistant Surgeon Mathia Das of Moga, again head the lists in regard to operations. The former has performed a greater number of operations than the seven officers who stand next to him put together"

#### "OPERATIONS

"During the year 251,865 operations were performed against 233,637 in 1911 Of these the selected opera tions numbered 33,430 against 25,817 in the previous year or an increase of 7,613 The total deaths after operations were 554, giving a death-rate of 22 per cent

"The selected operations include 14,874 for the ertrac tion of the lens, of which 14,012 were successful, giving a percentage of good vision of 942, stone in the urinary bladder accounted for 2,245 with 79 deaths, amputations 534 with 34 deaths, hernia 376 with 14 deaths, liver abscess 84 with 18 deaths, abdominal section 126 with 24 deaths, ovariotonies 64 with 9 deaths, Cæsaiean section 27 with 9 deaths, prostatectomy 67 with 11 deaths, removal of the vermiform appendix 17, with no death, operations on the gall-bladder and kidney 9 and 12 with no death and 2 deaths, respectively

"The largest number of operations were performed at the Amritsar Civil Hospital and the Moga Hospital (6,934 at the former and 6,933 at the latter), the other institutions showing a large amount of operative work are given below in the order of the amount of work done —Victoria Memorial Hospital, Jullundur, the Mayo Hospital, Lahere, Rawalpindi, Rupar, Delhi, Karnal Gurgaon, Ambala and Sialkot Civil Hospitals and Jalalpur Jattan Mission Hospital For cataract operations Moga again leads with 2,900, followed by Amritsar with 1,731, Jullundur with 1,508 and Gurgaon with 1,306 The largest number of operations for stone in the bladder was again performed by Senior Assistant Surgeon Ram

Narayan, Civil Hospital, Multan

"The Commissioned Medical Officers who performed the largest number of selected operations are —(1) Lieutenant-Colonel H Smith, v Hs, i Ms, 2,664, (2) Major E S Peck, i Ms, 606 in 3\frac{3}{4} months, (3) Lieutenant Colonel E V Hugo, i Ms, 48\frac{5}{5}, (4) Major J G G Swan, i Ms, 358, (5) Lieutenant Colonel A Coleman, i Ms, 292, (6) Major M Coiry, i Ms, 267, (7) Major H Ainsworth, i Ms, 243, (8) Captain S H Lee Abbott, i Ms, 214 The Missionary doctors who performed a The Missionary doctors who performed a IMS, 214 large number of operations are -(1) Dr Taylor of Jalalpur Jattan, 587, (2) Dr Newton of Jalalpur Jattan, 320, (3) Miss Mavi White of Sialkot, 299. The Civil Assistant Surgeons who distinguished themselves in surgical work are —(1) Khan Sahib Mir Dewan Ali, 1,510, (2) Bhai Amrik Singh, 856, (3) Munshi Nazii Husain, 636, (4) Lala Sii Ram, 629, (5) Lala Baij Nath, 549, and (6) Munshi Muhammad Din, 433 Sub-Assistant Surgeon Mathia Das has once again distinguished himself in surgical work, and performed no less than 3,245 selected operations The other Sub-Assistant Surgeons who deserve mention are -(1) Pandit Nand Lal 646, (2) Pandit Asa Ram, 419, (3) Munshi Allah Bukhsh, 288, and (4) Lala Pala Ram, 264"

The following extracts is of interest —

"The system of charging fees to all who can affoid to pay has not been introduced everywhere, as it has not gained general approval. The system has been more successful in the Ferozepoie district, and though a falling off in attendance occurred at first, this is no longer the case Where the Sub Assistant Surgeon in a dispensary is very popular the patients pay fees readily. At Moga dispensary the cost of medicines and dressings are almost entirely defrayed by the patients"

Statement 9, in these reports is always of interest, we will quote only few of the figures for the more important operations There were 2,383

operations for tumours, 38 lightures of arteries, over 7,000 operations on bones over 1,800 on joints, numerous amputations, 48 sclerotomies 1,783 artificial pupils, 1 206 iridectomies, 14,874 cataracts, 431 tor nasalpolypus, a long list of abdominal operations including 14 sutures of intestines, 13 enterectomies, 33 for intestinal obstruction, 59 various operations for appendix trouble, 84 for abscess of liver, 25 for hydatic cyst, 371 herma operations, 12 operations on the kidneys. The stone operations were litholapaxy 2,059, lithotrity 29, lithotomy 168, showing litholapaxy as the operation of election with experts Numerous ovarian and uterine operations were also done port is a fine record of first class surgery

### PUNJAB, SANITARY

The Sanitary Report for 1912 is submitted by Lieutenant-Colonel S Browning Smith, DPH, IMS, Officiating Sanitary Commissioner The following interesting note is taken from the Government Resolution on this Report -

"These figures seem to show that the Punjab in a favourable year is healthier than several European countries, though it still falls a long way behind the most advanced. One of the problems before the province is the elimination of the epidemic. It is that which is the disturbing factor in our death rates, and which may send up a rate of 26 in one year with a bound to nearly 50 in the next. But there is much to be done too in the general amchoration of the sanitary conditions of life Measures undertaken with this end in view will not only reduce the frequency and the virulence of epidemics, bit will also bring the death rate for a healthy year much below the present figure of 26. It is little more than a generation since the passing of the Public Health Act of 1875 in England It was followed 15 years later by the Housing of the Working Classes Act In 1878 the death-rate was 21 I than steadily declined since then till in 1911 it stood at 148

"There are signs that the leaders of the people are beginning to awake to the possibilities of hygienic ad vance, but it is not only by directing their gaze west wards that we can encourage their dawning interest"

There was a considerable amount of cholera but it was not a bad year. It is a pity that the simple measure of disinfecting wells still excites the ignorant hostility of the people, as at Hasan Abdul, ctc

The small-pox epidemic of the previous year attained its maximum in July 1912 be noted that inoculators were at work in several districts, thus materially fostering the spread of the disease. The Tara Devi inspection system caught 16 cases of small-pox which otherwise might well have infected Simla Major C E Southon, INS, submits the report on plague The year 1912 was a mild plague year quote the following useful notes from Major Southon's report -

### "SEASONAL VARIATION

"This was typical of an ordinary mild plague year Starting with 1,000 deaths in January, each succeeding month multiplied the previous one's number by two till the end of April In the following two months there was a rapid fall. The death rate fell in these two

months to about the same level that it had obtained in the previous January During the months of July, August and September it lay dormant but still never quite dead and in the last three months of the year the epidemic gave signs of renewing strength, only requiring favourable conditions to burst into vigorous and virulent life Most fortunately these were absent, the winter rains were delayed and when they did come the tempera ture was too low to allow of those warm humid condi tions which we associated with a severe plague season.

#### "MEASURES ADOPTED

"Evacuation — In certain districts where conditions are favourable this measure is freely adopted as in Shahpur, Ambala and Jhang In most of the other districts it is only when plague is well established and taking a heavy toll that the people will move out of then villages That the measure is an efficacious one they acknowledge, but in ordinary years they prefer to run the risk of infection to undergoing the expense and trouble of a move Of 1,500 villages infected 61 were

completely and 189 partially evacuated

"Rat destruction -This was not attempted on the large scale of former years. Trapping with as many traps as were available was chiefly confined to those villages which were infected during the quiescent period or late in the previous season in the endeavour to stamp out the first beginnings of plague. In plactice, how ever, it was not while the rat mortality was in progress, but only after human cases, in the plural number had occurred, that information was brought to the plague Thus this measure did not have the chance it otherwise might have had though much good work was done in cutting short epidemics Many cases are re corded by the plagues staff of the discovery of 1at mortality in villages near those in which human cases were occurring, where prompt trapping saved the spread

of the disease to man
"In certain selected towns and villages trapping was carried on throughout the year, especially was this the case in the Amritsai and Hoshiarpur districts. In several of these plague made its appearance, but in such a mild way as to suggest that much good had been done by keeping down the level of the rat population Another method of rat destruction which has been tried in an experimental way is that by means of the smoke Smoke is generated in a cylinder, using straw or any other cheap substance which will produce acrid smoke, and this is forced down rat holes by means of bellows Exit holes are closed and rats are quickly suffocated Sulphin is also sometimes added to the suffocated Sulphur is also sometimes added to the straw and the fumes produced cause very rapid death not only of the rat, but also of the fleas on it

"From our present knowledge it would appear that this method is very suitable to towns, especially those which are well built and where the rat population is to be found on the floor level and under it. It is not quite so efficacious in thatched or tiled villages where rats live on the roof level At the same time it would appear from certain experiments that the smoking of a village on one occasion, that is one or two days' work, is equivalent in result to the trapping of that village for one month A combination of the two methods would certainly prove of great value

"The advantages of this method are that it is cheap, rapid, kills both the flea and the rat, and moreover the rat has no say in the matter, and most important of all it offends no religious prejudice The disadvantages are that very careful and reliable supervision is needed and

it is not so adaptable to villages
"Inoculations — The number of inoculations perform ed was 51,570, which is only about half of the number done in the previous year, but when it is considered how mild a year it has been the number is very good The attitude towards inoculation is slowly but surely changing from one of fear and distrust to acknowledgment of its usefulness, but yet only to be resorted to when plague has asserted itself with no uncertain hand

"Solar disinfection —This simple measure of exposure to the sun's rays for an hour of the clothing and belongings of a traveller from a plague infected village to another, by which means all fleas are destroyed, have been made known by word of mouth and by leaflet throughout the Punjab Moreover, convenient sites were selected and cleared for the convenience of both sexes and suitable arrangements were made for the privacy of females Such sites were usually on roads near the entrances of villages Those villages were

chosen which were in the neighbourhood of infected ores
"The right of refusal of access to travellers from an
infected area, if they refused to undergo solar disinfection, was carefully explained to the people. This right was seldom taken advantage of, but the idea is in its infancy, and when it gradually grows familiar, more use will be made of it Even- as it is, evidences are not wanting that an increasing number of villages are be-coming alive to the value of this right and are taking advantage of it Villages in the neighbourhood of an infected one were always warned of the danger they ran in admitting any person from such a plague stricken

#### "STAFF

"The staff consisted of, in the earlier part of the year, 12 Commissioned Medical Officers, 1 Uncovenanted Medical Officer, 20 Civil Assistant Surgeons, and 20 Sub-Assistant Surgeons.

### "FEVERS

"Like the year 1911 the year 1912 was one remarkable for a low degree of 'fever' prevalence"

### Connespondence

### A NOTE IN FRONTIER SORES

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR, -Frontier Soies are chionic ulcers and are usually said to be Oriental Sores and are entered as such in many hospitals This is not really the cases as they are not due to the Leish man Donovan body but are due to a mixed infection a micro coccus along with a small stoutish bacillus

Out of 15 cases examined microscopically only one revealed the Leishman Donovan body, the others above noted mixed

The sores resemble the "Tropical Ulcer" described by Castellani This is the case at any retempth. This is the case at any rate in the Derajat Dis trict

> Yours, etc. A H NAPIER, CAPT, IMS

### CASE OF SNAKE BITE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The following case of snake bite successfully treated with Permanganate of Potash and Ligature may be of interest at the present time, when there is some difference of common as to the estimate of this method of treatment.

A woman in the Dufferin Hospital here was sleeping on a low "charpir" on the verandah, when she was bitten on the index singer of the right hand by a krait which was killed tunately after and subsequently identified by me. For in less than 5 minutes had incised the wound, inbbed in one at the root of the singer and another on the wrist. The till morning, the patient in the meanwhile suffering a good. accident occurred at night and the lightures were not removed till morning, the patient in the meanwhile suffering a good deal of local pain, but no general symptoms. After the lightures were removed no further symptoms occurred, and the patient is now—5 days after—convolescing with nothing worse than a sloughing wound of the finger.

Of course it is impossible to say what might or might not

Of course it is impossible to say what might or might not have been the sequel if no treatment had been given, but with that this specimen was a lusty hand of the rinches long, the inference is that the result would have been serious, if not fatal.

Much credit is due to Miss Ventura, the Female Hospital Assistant at the Dufferin Hospital, for her prompt action, which averted a probable tragedy

> Yours truly, C H REINHOLD. CAPTAIN, IMS

BIINOR, U P, 1 August 6th, 1913 \$

#### DEVIL DRIVING

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—That in Muffisil places, evil spirits still play an important role in some of the diseases, will be evident from the following two cases. In the dark and obscure villages, some diseases especially the nervous maindres are identified with the actions of evil spirits, and the symptoms of both low and violent deliriums are considered by the villagers to be the plays of devils only. Various methods of treat ment are in vogue, and at times, resorted to, when a man has the ill luck to be possessed by a devil. If a man get seriously ill, just after fishing at night, he is supposed to be possessed by a water devil, which goes by the name of Barshval, and when after keeping night watch over a corn field, he falls a prey to Godam a cow devil. There is a superstitious belief among the rustic in the grim reality of man devils of different caste and creed, horse devils, buffalo devils, etc. Patients possessed of these devils are often times put to to tures of a serious type. Sometimes red hot from needles and fishing hooks are applied to all over the body, and the patients are tied hand and foot, and struck with worn out and cast off shoes, and broom sticks. The patients, i.e. the devils inside them, Indomining under this barbarous method of treatment, cryaloud in agony for help and to the top of their voice, often in nasal twang, and constrained to leave the ill fated subjects. The Rojas, or the mystic physicians consider these torturies, inflicted not on the affected patients, but on the devils, that get an access to the inside of their corporal being. Hence the cry for help, and entreaties for mercy are not paid any heed to, and the inhuman treatment is often times suffered to be continued till the victims shew signs of prostration. The with the actions of evil spirits, and the symptoms of both low and violent deliriums are considered by the villagers to be the plays of devils only Various methods of treat continued till the victims shew signs of prostration. The crude notions with their attendant evils are predominant in the villages not far off the centre of culture, and Government Charitable Institutions and Hospitals.

ment Chartable Institutions and Hospitals

Two curious cases of preventive measures are worth
recording Year before last winter, cholera broke out in
an epidemic form at *Relgatchi*, a village mostly inhabited by
Mahomedan cultivators, lving close by the Railway Station
of Churdanga on E B S Ry

The headmen of the village
belonging both to the old and new schools just on the out
break, thought it mudent to have recourse to a markeletic of Churdings on E B S Ry The headmen of the village belonging both to the old and new schools just on the out break, thought it pludent to have recourse to a prophylactic measure by hiring the services of a Mollah of the priestly class, presumed to have supernatural powers. This Mollah after performing some necessary preliminaries, promised to drive the choleia devil from the village within a week's time. The remineration being fived at Rs 2 per diem, exclusive of food. The bold and enterprising managive of the physician for the stipulated period, commenced from nightfall till day break. He took a heavy club, and began to strike the jungles and other rank vegetations as vigorously as could be imagined, with the yells, and loud and hirsh cry of a monster, going round the outskirts of the village for times without number all the night through violent type, critique off 5 of persons daily. The elders of the village put the Mollah to task by calling for an explantion. In reply the grant defender of health very graphically described to the headmen, and the illiterate with the obstruate devil of cholera. He made the headmen clearly understand the plain truth, that he had worked very their village and his strenuous efforts were almost successful, as soon as he was turned out of the village, took a winding and but on his word, as he explained the mischievous devil, as soon as he was tuined out of the village, took a winding and cilcuitous round, and re enter the cursed place. The simple hearted and the illiterate mass with the headmen believed the story, and made airangements for securing the services of another Mollah to work with the present one, solely for standing in the way of the circuitous rounds or movements of the devil. The Mollah left the village on the very day, and must of a competent assistant but did not return again. A more curious instance of driving away the devil of inhabited by merchants and tradesmen about a mile and a after rains, the place in question along with its environ but on his word, as he explained the mischievous devil, as soon

after rains, the place in question along with its environ ments becomes a hotbed of malaria, and in spite of medical help at hand, a half educated headman of the village with

his associates took it into his head, quite a novel and more polished procedure for driving away the devil of malaria. They lost no time in purchasing a pair of donkeys at a very high price, with the superstitions belief, that the neighing of these animals would do away with the evil spirits of malaria, from their village. The animals have since been being taken good care of for the last two years and a half, and they have multiplied their number by two young ones. They make ravages on rice and coin fields, and damage at times other crops, they find in their way. If these animals are, by chance, impounded in the cattle pounds, they are released, without any fine being imposed, through the undue influence of their masters. These animals are held as peculially sacred by the so called village elders as a power ful scare crow, at whose impleasant and ear piercing neighing the deal of malaria gets frightened, leaves the located area, and takes refinge in the woods near by. It is needless to add that to the utter disappointment of the wise folks, the animal visitation of malaria is as virulent in type as in the annual visitation of malaria is as virulent in type as in years gone by

P O RUMIRDHA, (NADIA),
The 13th August 1913

Yours etc K P BAGCHI, Medical Practitioner

[We think the above graphic description of devil driving well worth publishing It illustrates one of the difficulties of the Sanitary Officer in India —ED , IMG]

### THERAPEUTIC NOTICES

#### INTERNATIONAL CONGRESS OF MEDICINE

At the International Congress of Medicine, which was held in London during the first week of August, Messrs A Wulfing & Co, were awarded the Grand Pir for their well known tonic food, Sanatogen—It is a significant fact that an international jury of leading medical men should have singled out this preparation for the highest possible award, and the makers are to be heartly congratulated on their success success

#### "SKIN HYGIENE IN SUMMER"

Heinz Giaf, publishes in the "Hamburger General Anzelger" of May 25th, 1913, some interesting points. The author writes as follows in reference to the treat-

ment of the scalp
"It is beneficial for the ham of the head, that the evapora tion of the sweat should not be prevented by an impenetiable headcovering. The exposed incovered head has several advantages and conveniences. Regular washing of the head is good for the hair. The preparations, such as Anthrasol, etc., are to be recommended for hair washes. The best remedy for dandruff is the application of fitty substances to the head. I have myself obtained marvellous results from using hair spirit lotion containing Euresol Knoll. The persistent irritation has disappeared after two or three applications." nritation has disappeared after two or three applications

#### LITERARY INTELLIGENCE

An important (new work is about to be published entitled "RFSI ARCHES ON RHEUMATISM" by Dr F J Poynton and Dr Alexander Paine From the pieface we call the fol

lowing extract - "We have collected in this volume the chief papers bear ing upon a research on the subject of theumatism which has extended over a period of fifteen years. In so doing we are well aware that few have the time to spend over reading the details of such investigations, but should the essentials of this research be eventually established, we feel that this book will stand as a landmark in the history of rheumatism in this country. Some of these papers were written before nthis country Some of these papers were written belove we demonstrated what we believe to be the exciting cause of the disease of their elucidate the nature and action of that cause, others, again extending the main thesis, deal with allied conditions. At the conclusion of the volume the bear

allied conditions At the conclusion of the volume the bearing of these investigations upon clinical medicine and public health is considered in a special article."

The work, which is to contain 106 black and white plates and a frontispiece in colour, will be published by Messrs J & A Churchill, of 7 Great Mailborough Street W

The same firm has nearly ready—the 11th Edition of Swayne's "Obstrtaic Aphorisms" which is now edited by Dr W [C Swayne Professor of Obstetrics in the University of Bristol, also the 7th Edition of "The Microtomists Vade Mecum" by Mi A B Lee the 6th Edition of the late Professor Campbell Brown's "Practical Chemistry," Edited by Dr Bengough and the 3rd Edition of "A Text Book of Physics" Edited by A Wilmer Duff

### Sqrvice Botes.

It is perhaps not sufficiently appreciated how dead the "Morley Doctrine" has already become It was a short sighted and impracticable order, and we are glad to see its rapid disappearance. During the current year the Secretary of State has sanctioned 6 new IMS appointments, ris Consular Surgeon at Mohamemiah, the Professorship of Pathology, Bombay, the Deputy Sanitary Commissioner, N W Frontier Deputy Sanitary Commissioners, Burma and Bongal, and Health Officer Delhi, moreover the Deoli appointment which disappeared with the ogency has been to used as a military appointment ievived as a military appointment

THE following table is of interest, in regard the chances of promotion in the 3 old Presidential Services I MS -

Proportion of Surgn Genls (to Lt Cols & Majs of Cols the old establishments Selected Lt Cols Bengal Lt Cols & Majors 118 139 126 8 per cent Selected Lt Cols Lt Cols & Majors Madias 11 per cent or Selected Lt Uols Bombay Lt Cols & Majors 20 7 25 oi 13 7 per cent Proportion of selected Lt Col Bengel 21 Other ranks 118 56 oı 18 per cent 11 Other ranks Madurs 3 33 per cent Other ranks Bombay 1 22 or 45 per cent.

BRIGADE SURGEON JOHN LAW, I MS, lettred, has given a sum of £1,000 to endow a bed in the Dicadnought (Seamen's) Hospital at Greenwich, it was opened on 7th August Di Law has been connected with the Seamen's hospital for over half a century, since 1857 He entered the Madras Medical Service as Assistant Surgeon on 28th May 1858, became Surgeon on 28th May 1870, and Surgeon Major on 1st July 1873, lettring with a step of honorary rank on 1st February 1873, returng with a step of honorary rank on let February

LIFUTENANT COLONFL MACKINTOSH ALENANDER THOMAS COLLIF, of the Bombay Medical Service, retired on 30th June 1913. He was born on 2nd July 1856, educated at Aberdeen, where he took the M B C M in 1881, after previously getting the L R C S, and L R C P, at Edin buigh in 1878, and entered the I M S as Surgeon on 31st March 1883 becoming Surgeon Major on 31st March 1805, Lieutenant Colonel on 31st March 1903, and reaching the selected list on 11th January 1909. After a few yells passed in regimental duty, he became Secretary to the Surgeon General, Bombay, in 1888, got a professorship in the Grant Medical College in 1892, held various Civil Surgeoncies from 1895 to 1903, when he was appointed a Presidency Surgeon, and became Physician to St. George's Hospital in November 1905, holding that post till his retirement. The Army List assigns him no war service.

SURGION COLONEL SAMUEL BRADSHAW HUNT, Madras Medical Service retired, died at Limetick on 24th July 1913. He was educated in Dublin, took the L R C S I and L R O P Ed in 1864, and entered the I M S as Assistant Surgeon on 1st April 1865, one of the first batch who came in after the service had been closed from 1860 to 1867. He became Surgeon on 1st July 1873, Surgeon Major on 1st April 1877, Brigade Surgeon on 26th August 1886, and Surgeon Colonel on 1st March 1893 retiting on 1st March 1898. His first ten years were spent in regimental duty, chiefly in the 7th M N I on 9th December 1876, he was appointed Surgeon to the Body Guard, and held that billet for sixteen years, till his promotion in 1893. During this time he was twice in furlough, 1878 79 and in 1890 91, and in 1882 served as Medical officer of Coonoor, while from 1834 on the first of Surgeon of the third district of Madras was combined with the very

light duties of the Body Guard In the administrative grade he served as P M O first of the Rangoon district, later of the Bangalore and Southern district, and in 1895 acted as P M O of the Madras Command, with temporary rank as Surgeon General The Army List assigns him no war

A Medical Poet Laureate —Not very long ago we recorded the appointment for the first time of a medical man, Sir Thomas Crosby, as Lord Mayor of London Now for the first time a medical man has been appointed Poet Laureate, Dir Robert Bridges who was greetted to that post on 16th July 1913, in place of the late Sir Alfred Austin Though Dir Robert Bridges is the first medical Poet Laureate he is not the first medical man to make his mark in poetry. Oliver Goldsmith was M. D. of Padua. Even greeter than Goldsmith, John Keats was also a doctor. Goldsmith, however, has a special interest for the I.M.S., as he nearly became a member of our service. In 1758 he received an appointment from the East Indian Company, as surgeon to a factory in the Coromandal Coast, subject to passing an examination at the College of Surgeons. He was examined on 21st December 1758 at Surgeons Hall, for a certificate of his fitness for the post of Surgeon's mate, and in spite of his M.D. degree, was rejected. M D degree, was rejected

MAJOR A M JUKES, MD, IMS, is confirmed in his appointment as Deputy Sanitary Commissioner, Burdwan and Presidency Cucles, with effect from the 27th March 1913

Lieutenant Colonel G G Gifford, CSI, IMS, 18 due out from short leave on 3rd October 1913

LIEUTEVANT COLONEL R H ELLIOT, FRCS, is due out on 18th November

LIEUTENANT COLONEL R K MITTER, I MS, was granted 131 months' leave and is not due out till middle of Septem

MAJOR W J NIBLOCK, I MS, is due out in Madias on 8th December

MAJOR A MILLER, IMS, acted as President Board of Examiners, Medical College, Madias, and was acting

Captain R D Will cocks, I M s , has applied for 6 months' extension of study leave

CONSEQUENT on the redistribution of the changes of the Presidency Surgeons whereby the number of Presidency Surgeons is reduced from three to two, the Governor of Bombay in Council is pleased to make the following appointments

Appointments—
Lieutenant Colonel T Jackson, M.B., B.Ch. (R.U.I.), I.M.S., to be Surgeon Superintendent of St. George's Hospital
Lieutenant-Colonel S. H. Burnett, M.B., C.M. (Abdn.),
I.M.S., to be Presidency Surgeon, First District Physician on the staff at St. George's Hospital, Marine Surgeon and in medical charge of the Elphinstone College
Lieutenant Colonel J. Crimmin, V.C., C.B., C.I.E., D.P.H. (Ire.), I.M.S. (on leave), to be Presidency Surgeon, Second District, and in medical charge of the Common Prison, House of Correction and By culla Schools

MAIOT G E STEWART, MB, FRCS (E), IMS, to act as Presidency Surgeon, Second District, with attached duties, in addition to his own duties as Superintendent of Mahaba leshvar, vice Lieutenant Colonel J Crimmin, on leave

Consequence and the appointment of a full time Professor of Anatomy at the Grant Medical College, the Governor in Council is pleased to make the following appointments—
Lieutenant Colonel A Street, MB (Cantab), FRCs, IMS, to be Senior Surgeon, J J Hospital, and Professor of Surgery, Grant Medical College, to act as senior Medical Officer, J J Hospital, and to be, pending further orders, substantive protein Principal, Grant Medical College
Major T S Novis, FRCS, IMS to be Second Surgeon, J J Hospital, and Professor of Clinical and Operative Surgery and Curator of the Museum, Grant Medical College
Major J H McDonald, MB, CM (Edin), IMS, has been allowed by His Majesty's Secretary of State for India an extension of furlough on medical certificate for six

His Excellence the Governor of Bombay in Council is pleased to appoint Major V B Bennett ub, Eq (Lond), FR.CS, IMS, to be a Civil Surgeon of the first class

His Excellency the Governor of Bombay in Council is pleased to appoint Captain B B Paymaster, I MS, to be Personal Assistant to the Surgeon General with the Govern ment of Bombay

CAPIAIN J H HORNL, I MS, got 3 months' privilege leave up to 26th September, 1913

LIEUTFNANT COLONEL W R CLARKE, IMS, has gone to Jullunda as Civil Surgeon

LIEUTENANT COIONEL D M DAVIDSON, I MS, has gone to Lahoie as Civil Surgeon, after a stay of ten years as Civil Surgeon of Delhi

CAPTAIN I M MACRAE, I M S, Superintendent of Central and District Jails, Agra, is granted privilege leave for one month with effect from the 1st September 1913, or subse quent date

MAJOR A W OVERBECK WRIGHT, IMS, Superintendent of Luntic Asylum, Agra, to hold executive and medical charge of the Central and District Jails, Agra, in addition to his own duties, during the absence on privilege leave of Captain I M Macrae, IMS

FIRST CLASS Military Assistant Surgeon A A E Baptist, Officiating Civil Surgeon of the Santal Parganas, is appointed to be a Civil Surgeon of the second class with effect from the 1st April 1912 He will continue to be stationed at Dumka until further orders

THE Secretary of State has sanctioned an exchange between Captain B Coatts, RAMC, and Captain A W Howlett,

Captain Howlett entered the service on 27th July 1907 and has recently acted as Superintendent of the Central Prison at Bareilly

LIEUTENANT COLONEL H E BANATVALA, IMS, at present officiating as Inspector General of Civil Hospitals, Central Provinces, is appointed, with effect from the date he assumes charge of his duties, to officiate as Inspector General of Civil Hospitals and Prisons and Samitary Commissioner, Assum, during the absence on leave of Colonel R N Campbell, CB, CIE, IMS, or until further orders Major E C MacLeod, IMS, is appointed, with effect from the 2nd August 1913, to officiate as Inspector General of Civil Hospitals and Prisons and Samitary Commissioner, Assam pending assumption of charge of that office by Lieute nant Colonel H E Banatvala, IMS

CAPTAIN C H CROSS, I M S is appointed to be a proba-tioner in the Chemical Examiner's Department, and is attached to the Chemical Examiner's Laboratory at Madias

SIR ARTHUR M BRANFOOT, KCIE, late I M S, on netwrement from the India Office is granted the honorary rank of Surgeon General from 16th July 1913

LIEUTENANT COLONEL W H OGILVIF, WB, IMS, Health Officer and Civil Surgeon of the notified area, Delhi, is granted six months' combined leave out of India under the Leave Rules of the Indian Aimy (the first 90 days on privilege leave), with effect from the 1st May 1913 or any subsequent date

Pension Service-21st year commenced on 30th January

THE Department of Education Notification No 1212, dated the 22nd July 1913, placing the services of Captain W S McGilliviay I us, at the disposal of the Government of Bulma is hereby cancelled

The services of Captain H R Dutton, IUS, are replaced at the disposal of the Government of Bengal, with effect from the 3rd June 1913 Capt Dutton got typhoid at Delhi and had to take leave home

THE following promotions are made, subject to His Majesty's approval

### Captains to be Majors, I M S

Alfred Einest John Lister, MB, FRCS, Thomas Samuel Beunchamp Williams, MB, John Edmund Clements, MB, Ernest Bisset, MB, Alexander William Overbeck-Wright, MF, David Munro MB, FRCSE, Robert Markham Carter, FRCS Dodington George Richard Sheiston Baker, Jaspei Robert Joly Tyriell, MB, Thomas Henry Gloster, MB, James Henry Horton, DSO, MB, William Adolphus Justice, MB, with effect from 29th July 1913.

This means accelerated promotion for the above officers who entered the service on 29th January 1902. The batch was a big one and consists of 26 men, of whom the above 12 only have up to now received or qualified for accelerated promotion

LIFUTE LAT COLONDI BRUCE G SETON, URS, and Deputy Director General, I M S, has been promoted Brevet Colonel from 30th June 1913

CAPTAIN W F BRAYNE, I MS, on plague duty in Burma, is appointed to officiate as Deputy Sanitary Commissioner, Burma as a temporary measure with effect from the 23rd July 1913

UNDER the provisions of article 168 of the Civil Service Regulations, Major A Fenton, W.P., I.M.S., was appointed to officiate as Superintendent of the Lunatic Asylum, Rangoon, in addition to his own duties, from 12th April 1913 to the 15th May 1913, both days inclusive, in place of Major W. H. Cov, DSO, IMS

The following I M S officers attended the 42nd Session of the London School of Tropical Medicine and passed the examination - Captain H H G Knapp, WD (with distinction), Captain B B Paymaster, and Capt J B Dalzell Hunter, MB

LIEUTENANT COIONEL B R CHATTERTON, I M 5, Civil Suigeon of Mazafai pur, is allowed privilege leave for thirty five days under Article 260 of the Civil Service Regulations with effect from the 1st September 1913, or any subsequent date on which he may avail himself of it

Major W H C FORSTER, IMS, Professor of Pathology, Medical College, Lahore, is granted combined leave, with effect from the 10th October 1913 viz —Furlough for one

year with study leave for one year in continuation
Major H M Mackenzie, MB, I MS, is appointed to
officiate as Professor of Pathology, Medical College, Lahore,
during the absence on leave of Major W H C Forster, IMS, or until further orders

THF services of Captum R B S Sewell, IMS, we replaced at the disposal of the Aimy Department, with effect from the 15th July 1913

CONSFOURNT on the retriement from the service of Lieute nant Colonel H R [Woolbert, Indian Medical Service (Bengal), an Agency Surgeon of the 1st Class, the following substantive changes among Agency Surgeons under the Foreign Depart ment are sanctioned, with effect from the 30th June 1913 Lieutenant Colonel W R Edwards, (MG, Indian Medical Service (Bengal), to be an Agency Surgeon of the

1st Class

Captain H Crossle, Indian Medical Service, to be confirmed as an Agency Surgeon of the 2nd Class
Lieutenant Colonel Edwards will join a class for Military training after his relief in November by Colonel G F A Harris, CSI, FRCP, IMS

CAPTAIN F W CRAGG, MD, IMS, is appointed to act as Assistant Director, Central Research Institute, Kasauli, during the absence on deputation of Captain J Cunning ham, MD, IMS, or until further orders

CAPTAIN RICHAPD FRANCIS CHFTWAND TALLOT MD, FP 81, Temporary Half Pay List, has been permitted by the Most Hon'ble the Secretary of State for India to refire from the service, subject to His Majesty's approval, with effect from the 24th July 1913 Captain Talbot joined the service on 1st September 1902 and has been on temporary half pay since 24th July 1939

Among the new M R C P's (31st July) we notice the names of Fleet Surgeon P W Bassett Smith, CB, RN, and, T S Lukis, WD, son of Sir Pardey Lukis, KCSI

THE D P H of the Royal College (England) has been taken by the following - Capt J A S Phillips, I M S, Capt E S Phipson, M B, I M S, and Capt J Taylor, M D, INS

LIPUTENANT COLONEL S E PRALL, MB, BS (London), INS, 18 granted privilege leave of absence for two months from the date of relief

LIEUTENANT COLONEL P P KILKELLY, WB, Pch (Dub), IMS, has been allowed by His Majesty's Secretary of State for India an extension of furlough on medical certificate for two months

IN supersession of Notification No 3007/II-336 dated the 24th May 1913 Lieutenant Colonel W Young, IMS, Civil Surgeon, on completion of his special duty to Campore

CAPTAIN B E M NEWLAND, ING, 19 posted to United Provinces for civil employ, and is posted to Ptawah

CAPTAIN J F BYOD, IMS, is posted to the United Provinces for plague duty

CAPTAIN M R S MACHATTERS, IMS, acts for Di Hankin as Chemical Examiner, vice Captain Nesheld, I vis

UNDER Section 6 of the Prisons' Act 1891, the Chief Commissioner is pleased to appoint Mr. Ishtra Ali, Extra Assistant Commissioner, Chhindwara, to the executive charge of the Chhindwara District Jul during the absence on deputation to Kasauli of Captain W. J. Friasel, Mr. F. P. C. S., I. M. S., Civil Surgeon, Chhindwara

MAIOR A GWITHER, IMS, on general duty at the Presidency General Hospital, is allowed privilege leave combined with furlough for six months, riz, privilege leave for one month and nine days under Article 260 of the Civil Service Regulations and furlough on medical certificate for the remaining period under Article 311 (a) of the Regulations, with effect from the 5th August 1913 with effect from the 8th August 1913

Ovieturn from leave Lieutenant T H Bonnai is postal to Gorlpara, Assam, as Civil Surgeon

CAPTAIN H C KPATFS, IMS, took over the dutie of Civil Surgeon, Campbellpore, on 1st August

WITH reference to Punjab Government Notification No 5488, dated the 14th June 1912, Lieutenant Colonel G Mc I C Smith, I M 4, Civil Surgeon, was on study leave from the 9th October to the 21st December 1912

### Motice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to The Editor, The Indian Medical Gazette, clo Messis, Thacker, Spink & Co, Calcutta

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### BOOKS, REPORTS, &c., RECEIVED -

D B Lees Incipient Tuberculosis H L Lewis & Co Mills & Humphrey 8, Surgery for Dental Students Longmans, Green & Co Price 1°s Gd Swemitz, Disease of the Lye 7th Ed W B Saunders Co C Strickland's Anophelines of Malaya (1°13) F M S Govt Printing

Office Office Garrod, Ballon & Thursfield, Diseases of Children, 1913 Fd Arnold & Longmans, Green & Co Price 803
Diets of the Presbyterian Hospital New Yorl W B Saunders Co
The Pasteur Institute of India Report
Murphy & Surgical Clinics Vol II, No 2 W B Saunders Co
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The Pasteur Institute of India Report
Murphy s burgical Clinics Vol II, No 2 W B Saunders Co
Bombay Asylums Report
Punjab Hospitals Report
Punjab Lunntic Asylum Report
Vaccination Report, Assam
White & Jeliffes 1 ervous Diseases (Vol II) Lea & Febiger
Major F Walls Poisonous Snakes (3rd Ed ) Bom Nat Hist Soc
Keogh's Manual of Venercal Diseases (2nd Ld ) Oxford Medical

Publications
Bidwell's Minor Surgery. Univ of London Press
Jenkinson's Vertebrate Embryology Oxford Clarendon Press
Auerbach's Headache Oxford Medical Publications
Sutherland's Treatment of Disease in Children Oxford Medical Publi

### LETTERS, COMMUNICATIONS, &c , RECEIVED FROM --

Lt Col Sunder, 1 45, Patna, Major Thurston, 1 88, Calcutta, Major B Steen, 1 48, I ucknow, Lt Col Adie, 1 35, Kashmir, Capt Fraser, 1 318, Madris Dr Bulloch, Iravancore Capt Proctor, 1 28, Serampore Capt A Deuham White I 318 Calcutta, Dr Bapshawe London Dr Harvey Andamans, Major Schy, 1 318, I ucknow, I t Col Rogers, 1 318, Calcutta

### Griginal Articles.

### ANKYLOSTOMES AND ANKYLOSTOMIASIS IN BENGAL\*

BY CLAYTON LANE, M D (Lond). Civil Surgeon, Dargeeling

ALTHOUGH the present state of knowledge regarding ankylostomes has been recently fully and impartially indicated by Looss, his paper is As a result workers in not readily accessible India are going over the same field again, and are, at least to some extent, wasting then time in rediscovering what is already known the hope of disseminating more widely an appreciation of the extent of our knowledge, and of indicating the directions in which work is required and will be most likely to be fiuitful, the following lines are written There will be no difficulty in distinguishing the small amount of original matter from the very large amount of fact for which the writer is so deeply indebted to the work of Looss

The subject is considered under two mainheads-I Diagnosis and II Prophylaxis

I Diagnosis—The diagnosis of ankylostome infection falls naturally into three parts, namely, (1) the recognition of the eggs in the fæces, (2) the recovery of the adults in the stool after the giving of a vermifuge and their identification, and (3) the presence of certain clinical symptoms These will each be dealt with in tuin, and in each case it will be pointed out that there are certain fallacies which must be kept in mind if false conclusions are to be avoided

(1) The recognition of the eggs in the fæces

The ova are of course, recognised by the microscope Before indicating the method, it may be said that in this, as in all other matters dealt with here, the standpoint taken is that the already very heavy work of a Jail Superintendent must be increased by the smallest possible extent if any practical effect is to be obtained in the attempt to induce a greater interest in the matter under consideration All that experience shows can be safely left to a medical subordinate or to a sweeper should be done by them The preparation of the stool for microscopic examination is certainly one of these matters It is undertaken as follows Some normal saline† is placed on a microscope slide With a splinter of bamboo or other suitable instrument a particle of fæces is picked from the stool and mixed with the saline, and the cover-glass applied When examined under the microscope the preparation

should form a single layer of fæcal granules it is too dilute the chances of finding ova are lessened, if not dilute enough the ova may be covered with food dobus and missed When the microscopist has obtained a satisfactory dilution and the sweeper has realised what this preparation looks like to the naked eye he will raiely fail m future to get ready a satisfactory one actual examination of the slide is not in any way The slide must be systematically passed backwards and forwards on the stage so that Ankylostome ova the whole of it is examined can be recognised with certainty under a low power (a quarter inch or A objective with a They have a thin colourless number 4 eyeprece) nearly oval shell which has a single outline even with a high power, the granular yolk does not fill the shell, and is nearly always more or less In a freshly passed stool the segsegmented ments will usually be from 4 to 12 in number The shell of Oxyurras vermicularis (Fig. XII) is also a colourless one, it has, however, a double outline, is markedly flattened on one side, and contains, when passed in the fæces, an embryo at least partly formed

It is important to recognise the fallacies connected with this method of diagnosis Firstly, the presence of ova of are of two kinds the ankylostome type does not necessarily imply infection with Aqchylostoma duodenale of this type are voided by all members of a very large group of worms containing many genera, and of these genera at least 5 me known at present to contain species which are parasitic in man In all these worms the tail of the male is extended into a umbrella-like "buisa," and the 5 genera indicated are Triodontophorus, Trichostrongylus, Oesophagostomum, Necator and Agchylostoma Members of the first three genera have not hitherto been found in man in India of the last two have, and both of them are referred to here in general terms as ankylostomes. The second fallacy lies in another direction result of a good deal of work by different individuals it has been shown that, taking an average of the different opinions expressed, it is necessary to examine fifteen slides taken from different parts of the stool and prepared in the way I have indicated, before it is justifiable to express an opinion that the individual under examination is free from infection It is obvious that a routine examination of this nature is an impossibility for the Superintendent of an Indian Jail

It is probable that in India, and indeed in most parts of the world, the published figures indicating the percentage of ankylostome infection are based on the microscopic examination of 2 or 3 slides All that can be said of them is that they show that the amount of infection is not less than the figure ın question How much greater than this figure the actual percentage of infection may be will be

<sup>•</sup> This paper has been written from the point of view of the Jail Superintendent, and at the request of the Inspector General of Prisons, Bengal

† One drachm of common salt in one pint of water

indicated later. It will be then apparent how inadequate is limited microscopic examination for the determination of the entire absence of ankylostome infection. This is of course, a very different matter from saying that it is not of great value in determining the presence of an infection sufficiently abundant to produce ill-effects

As will be seen from the figures (IX to XI) the ova of the three human ankylostomes vary in size, those of Necator being the largest and those of A ceylanicum the smallest Regarding the possibility of diagnosing the kind of ankylostome from the size of the eggs, one will be usually correct in concluding that an ovum measuring more than 60µ in length belongs to N amercianus and one of less than 52 to A ceylanicum, while the intermediate ones are those of A duodenale is, however, necessary to be first satisfied that the egg lies quite flat, and that one end is not tilted upwards, so foreshortening it A slight movement of the cover-glass will probably settle this Regarding the ova of A ccylanicum, there is this difficulty that they have never been hitherto recognised in the fæces In the specimens I have examined, the ova from the terminal part of the uterus and from the overectors are unsegmented, while in the case of the other ankylostomes segmentation has already begun before the eggs are passed Again the space between the yolk and the shell appears to be slight in this worm If these peculiarities turn out to be the rule then the diagnosis of infection by this parasite will be possible by the mere examination of the ova even without measurements

In order to avoid the impossible amount of microscopic examination entailed, if an accurate opinion as to the presence of a helminth infection is to be formed, a number of methods have been elaborated entailing the use of sedimentation, centrifuge, sieves, and various chemical substances, the whole object being to collect into a small volume all or nearly all the ova contained in the whole of a stool In effect. in order to shorten the microscopic examination much time is spent in preparation of the stool for that examination, and since this preparation appears to be one which could easily be undertaken by the medical subordinate and sweeper the method seems to be one especially suitable for an Accordingly, although the writer Indian Jail has no personal experience of it, a method modified by Maurice Hall from that recommended by It is as follows Bass is here described whole stool is stirred up with ten times its volume of water, and strained through gauze to remove The filtrate is centrifuged the coarser particles The sediment so obtained is washed several times, and to it is then added a calcium chloride solution having a specific gravity of 1250 this fluid the eggs come to the surface surface fluid is then poured off and diluted till it

has a specific gravity of less than 1050. The eggs will now sink in it, it is accordingly again centrifugalised, and in the sediment will be found nearly all the eggs contained in the whole stool.

(2) The recovery of the adults from the stools after the griing of a vermifuge and their identification -It will presently be evident that this is the most satisfactory method of diagnosis, and indeed the only one by which the kind of worm present can be certainly determined The usual preliminaries to a vermifuge should be carefully observed that is the prisoner should be in hospital for two days on a milk and sago diet three vermifuges recognised as effective against ankylostomes  $\beta$ -naphthol appears to generally regarded as the least active Of the two others, published figures appear to show that thy mol is somewhat more active than Manson's mixture. but before accepting this conclusion, which is presumably based on microscopic examination for ora, the fallacies noted above must be borne in The method of administration which has mind been employed in Berhampui is that recommended by Manson On the morning of the second day of light diet castor oil is given, and early on the morning of the third day three 20-main doses of thymol at hourly intervals, followed by Since thymol is soluble in oils, and an aperient may produce symptoms of poisoning if so dissolved, it is better that the last aperient should not be castor oil

Manson's mixture consists of oil of eucalyptus thirty minims, chloroform forty-five minims, castor oil ten drachms, one half to be given the first thing in the morning, and the second half thirty minutes later. I have not found on the whole that either anthelmintic is more efficient for one species of ankylostome than for the others. Manson's mixture however, possesses one very striking advantage which is mentioned below.

Having dislodged the worms and effected then passage, the next step is their separation from the This may be brought about by straining or by sedimentation or by a combination of the The sedimentation method is most strongly recommended as being by far the most It is carried out as follows The stool efficient to be examined is placed in a tall vessel or tin and is thoroughly mixed up with water, either by letting water 1 un into it forcibly from a tap, or by filling it up with water and then stirring the It is then allowed to stand for whole vigorously Three minutes is enough from 3 to 5 minutes to allow of all ankylostomes settling to the bottom, but for Trichostrongylus, and male Oxyurias The water is then careit is better to allow five fully poured off from the sediment, which must not be disturbed, the vessel is again filled up with water, thoroughly mixed as before and again This process is continued till allowed to settle

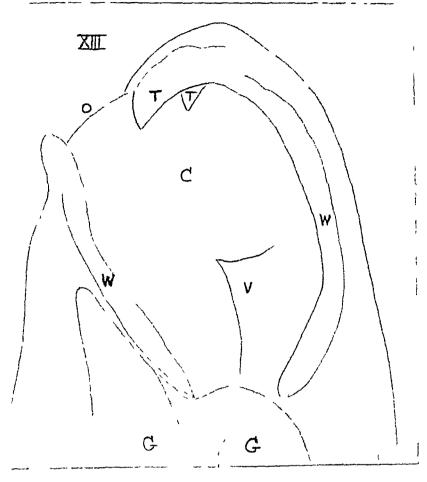
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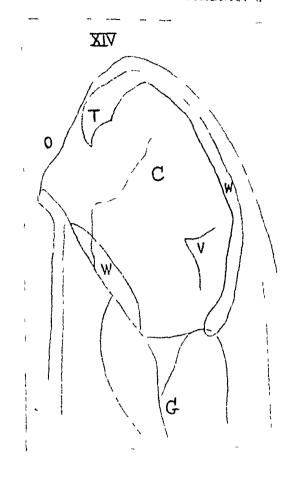
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Civil Surgeon Darjeeling

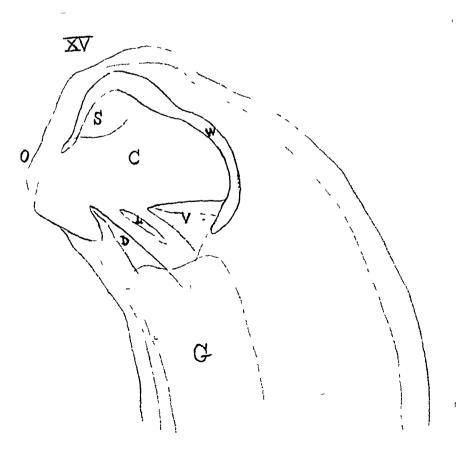
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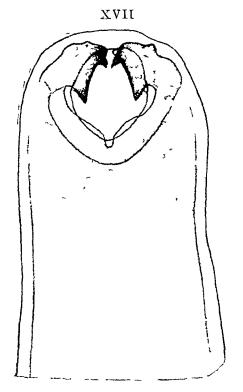


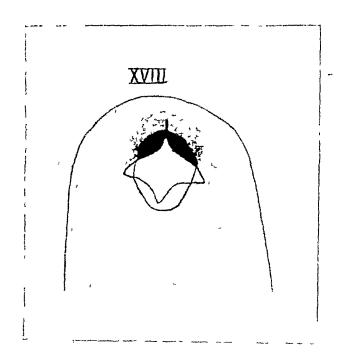


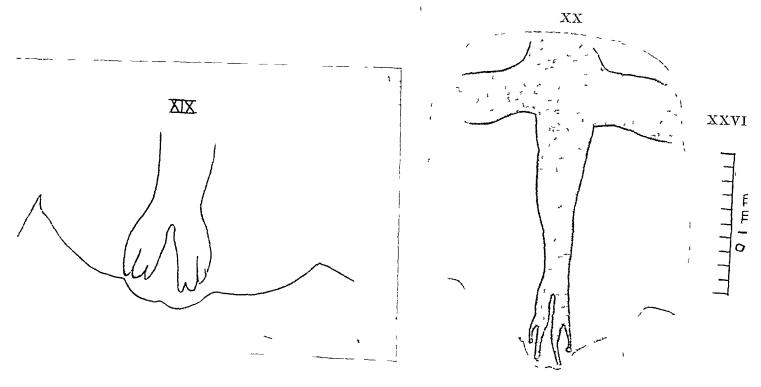
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B1 CLAYTON LANE, MD (Lond),

Cuil Surgeon, Dargeeling

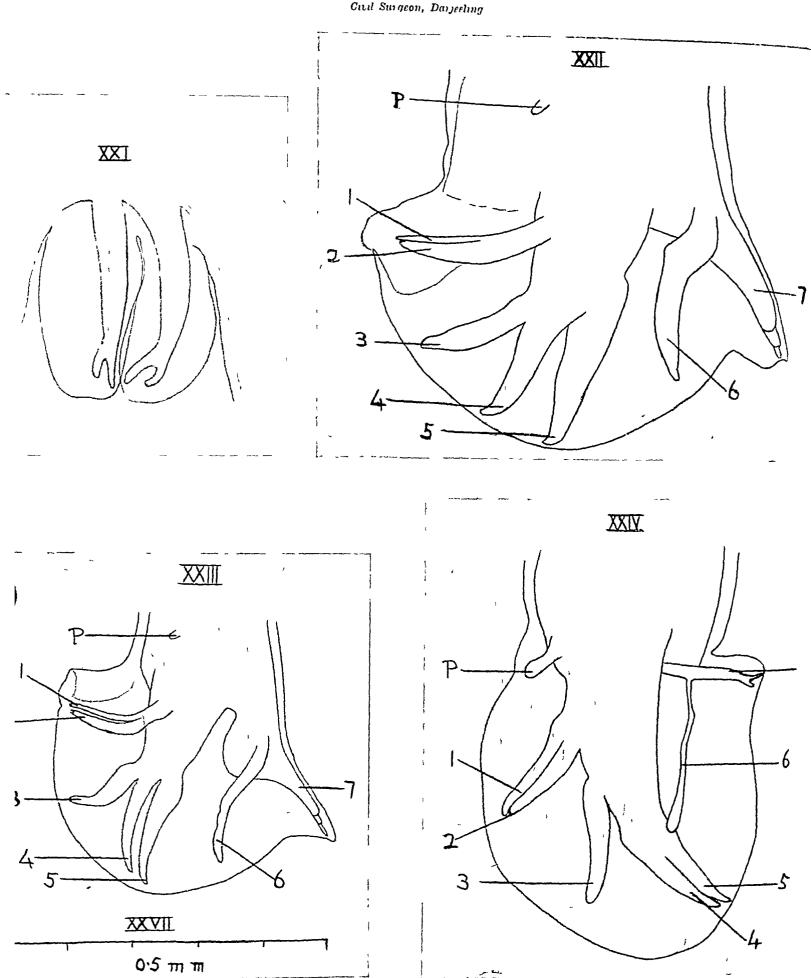






## ANKYLOSTOMES AND ANKYLOSTOMIASIS IN BENGAL

Br CLAYTON LANE, MD (Lond),
Civil Surgeon, Danjeeling



the sediment is reduced to manageable proportions, and will probably take the sweeper about The final sediment is poured out half an hou into a shallow dish and the worms are picked out against a black background, obtained either by having the dish made of tin and painted black, or by using a large petri dish against a black sui-The worms so obtained should be cleaned by shaking them in normal saline in a test tube The next step is the killing of the worms, and if much time is to be saved in identification it is here most important to pay minute attention to a few simple and apparently unimportant object of killing the The whole details worms in the way to be described is that by so doing they immediately take up and become permanently fixed in such characteristic attitudes that they can in nearly every case be readily and lapidly identified by the naked eye, so that then identification, instead of being such a tedious process that it is one impossible for a iail superintendent to undertake, becomes one which occupies only so much time as is taken up in pushing each individual worm into its own corner of the dish among its fellows. The method is this 70% spirit\* is heated in a small vessel (a test tube will do) till bubbles begin to lise It is then taken off the flame, and as soon as the bubbles cease to appear the worms are dropped into the fluid If the fluid is still boiling when the worms are dropped into it. bubbles will form in them, and will tear up then viscera, if the spirit is too cold the worms will not stretch themselves out into the charactenistic attitudes It will be noted that for these characteristic attitudes to be assumed it is essential that the worms should be alive when placed in the hot spirit, and it is for this reason that Manson's mixture has been so strongly recommended above as a vermifuge Its effect appears to be obtained by producing an intoxication of the ankylostomes, which are, however, still alive, fresh, and undecomposed when passed Thymol. on the other hand evidently kills them outlight, and they rapidly decompose, so that then muscles are dead and do not react to the stimulus of the hot spirit, and then attitudes are of no value in I am indebted to Sub-Assistant Surgeon Monoranjan Ganguli for pointing out the frequency with which worms are passed in a state of decomposition after the administration of thymol and for other valuable help in this investigation. The worms having been passed and preserved have to be identified Adult ankylostomes measure from 8 to 12 5 mm † in length. Putting aside the rare parasites belonging to the genera Triodontophorus and Oesophagostomum the only human worm with which an

ankylostome is in any way likely to be confused is the female Oxyurus vermicularis. These females (Fig. VII) are about 85 mm. long in India, are a pure white, and have long and pointed tails. Ankylostomes are of a duty greyish hue, and the tails are either expanded into a bursa in the case of the males, or end in a blunt point in the case of the females (Figs. I—VI)

There are three ankylostomes known to be parasitic in man in India, and they belong to two genera Necator and Agehylostoma. The parasites are N. americanus, A duodenale and A ceylanicum The members of the two genera are readily distinguished by the naked eye.

The characteristic attitude adopted by N americanus is that of the shape of the letter S with one limb of the letter much smaller than the The small curve is at the other (Figs I&II) head end, and has its concavity directed dorsally, the large curve comprises the most of the body and tail and has its concavity directed ventially This latter curve is usually more marked in the male than in the female, but is very decided even The male measures 8 to 9 mm in the latter long and the bursa is not conspicuous since it largely continues the outline of the lest of the The female measures 10 to 12.5 mm in length In common with other measurements given below these apply to worms passed after Manson's mixture has been given.

The two members of the genus Agchylostoma are either straight or have a single curve with its concavity directed dorsally (Figs III--VI) The male bursa spreads out sharply and conspicuously from the body like a partly opened umbrella

A duodenale is easily distinguished. The males average about 10 mm and the female about 125 mm in length. They are decidedly thicker than are specimens of N americanus, the bursa spreads out markedly and the worm is opaque from edge to edge throughout its length.

A ceylanicum is smaller than A duodenale, those recovered from man measuring on an average 85 mm long for males and 10.5 mm for The diameter appears much the same as that of N americanus If seen alive most of the worm is opaque from edge to edge, and so is the esophagus, but the parts surrounding the œsophagus are transparent, so that the whole worm has the appearance of a small needle mounted on a small needle-holder A suggestion of this appearance remains even after the worms have been killed and tendered opaque in spirit The male bursa is smaller than that of A duodenale These naked eye appearances do not amount to enough for a definite diagnosis, and all small worms which obviously belong to the genus Agchylo-

<sup>\*70%</sup> spirit is made by mixing 4 ounces of rectified spirit with one ounce of water 1 There are 25 mm in one inch

stoma should be looked at under the microscope This occurrence will be rare in Bengal and does not invalidate the statement that well preserved ankylostomes can in practically every case be identified by the naked eye

The microscope is, however, the final court of reference, and a knowledge of some characteristic distinguishing features of the different ankylostomes is essential

If microscopic examination is to be satisfactory, the worms must be seen from more than one aspect, and this can be effected by rolling them If the worm be placed on a slide, and covered by a cover-glass, and if this cover-glass be pushed in a direction at right angles to the long axis of the worm, the worm can be made to roll over and over, and can be inspected from any desired aspect. The space between the slide and cover should contain a sufficiency of 70% spirit to nearly fill it If the appearances are puzzling and do not correspond with those here depicted it is because the worms are being looked at neither from the side nor from the front or back, but obliquely, and the worms must be iolled till the right position is obtained points which are then to be particularly examined are the mouth, the esophagus, the male bursa, and the position of the vulva

The mouth cavity in Necutor is, when seen from the side (Fig. XV), nearly encular in optical In Agchylostoma (Figs XIII & XIV) it is oval with its long axis in that of the body In both cases the aperture of the mouth is directed somewhat doisally When the worm is rolled on to its venter so that one looks down into its dorsally directed mouth it is seen that the vential or cephalad\* edge of this is furnished with In Necator this consists of a pair an armature of plates (Fig XVIII) each nearly semi-circular In Agchylostoma (Figs XVI & XVII) these plates are modified to form teeth, the number and shape of the teeth varying with the different species In both the human species there are two pairs of teeth In A duodenale they lie nearly side by side, are of nearly equal size and the inner one bears a small prominence on its inner In A ceylanicum the outer tooth is, when seen in this position, long and superficial, the inner is short and deep, and partly covered by the outer All ankylostomes have at the base of the mouth cavity a pan of thangular ventral plates (Figs XIII—XV) Necator has in addition a pair of lateral lancets, and a single median dorsal cone, which is really the opening The esophagus of of the esophageal gland Necator is very much shorter than that of Agchylostoma

The tail of the male ankylostome (Figs XXII to XXIV) is expanded into a cuticular bursa

strengthened by rays The number of these rays is the same in all forms, then airangement, and the shape of the bursa they support ray in each

There are on each side of the bursa 2 ventral rays, which are so closely applied as to look like a single split ray Next follows a group of 3 lateral rays, named in order from front to back, the externo-lateral, the medio-lateral, and the postero-lateral rays, then comes the externodorsal ray, and lastly, the unpaned but bifurcated There is also on each side a predorsal ray bursal papilla In Agchylostoma the ventral rays project strongly in a ventral direction, the lateral rays have also on the whole a ventral direction, and the externo-dorsal and dorsal rays are strong and massive In the case of Necator the lateral lobe of the bursa is longer than it is broad, the vential rays project very little ventially almost continuing the line of the body in a caudal direction, the lateral rays have a decidedly dorsal direction, the externo-dorsal ray is long. thin, and easily overlooked as it lies beside the postero-lateral ray The dorsal ray is split to its base, each half being fine and bifurcated at its apex (Fig. XXI) The part of the bursa supported by this ray projects from the line of the body of the worm in the same manner as the rentral part of the bursa does in Agchylostoma projection of the dorsal part of the bursa with its doubly bifurcating rays is striking, and forms an easy aid to diagnosis

In distinguishing between the bursæ of the two forms of Agchylostoma the following points Corresponding with the difference in the size of the worms, the bursa of A duodenale is much larger than that of A ceylanicum lateral lobe of the bursa of the former is not so long as that of the latter, that is to say, its outline is less than that of semi-circle, while the outline of that of A ceylanicum is roughly a semi-circle As a result the lateral rays of A dvodenale are relatively short and stout compared with those of Each termination of the dorsal A ceylancumray ends in three points in A duodenale (Fig. XIX) and in two in A ceylanicum (Fig. XX). though it must be admitted that the triple termination in the former cannot always be made

The vulva in Necator is in front of the equator, in Agchylostoma it is well behind it

Having described the methods by which ankylostomes can be recovered and identified it remains to justify the statement made above that an estimation of the percentage of individuals infected with ankylostomes based on an examination of the amount of diluted fæces which can be examined under two ordinary coverships is fallacious. In the Berhampore Jail 150 prisoners have been recently subjected to miscroscopic examination of their stools to the extent men-

<sup>\* 1 .,</sup> that neares to the cephalic end of the worm

tioned, and they have then been treated with an anthelmintic The results are as follows —

			Percentage of prisoners
Prisoners examined Ankylostome ova found in	the	150	100
stools Ankylostomes passed after a ver		60	40
fuge The figures for infection by different ankylostomes are		116	77 3
Agchy lostoma duodenale Agchy lostoma cey lanıcum Necator americanus	,	91 14 97	60 7 9 3 64 6

In Beihampore Jail the number of cases of ankylostome infection is about double the number which would be expected judging by a limited examination of the stools. Out of these 150 prisoners the percentage of infection of those which had been passed as being in good health was 76, in indifferent health 89, and in bad 78

Not all these pisoners were however inhabitants of the local district, for the jail had received a considerable number of transfers from Jails of other districts, and the percentage of infection varied considerably in these different batches In pusoners coming from Mymensing and Barisal the percentage of infection, judging by the result of an anthelmintic, was 100, while in those from Kalıghat, most of whom were presumably inhabitants of Calcutta, the percentage of infection It is obvious that it is in those was only 47 parts where infection is light that the difference between the results of limited microscopic examination and of the administration of an anthelmintic will be greatest

The conclusions which emerge from a consideration of these facts are —The untrust-worthiness of an ordinary microscopic examination of the stools as a means of establishing the presence or absence of ankylostome infection, the varying amount of infection which appears to exist in the different districts of Bengal, and the absence of any marked relationship between these slight infections and the health of the host. These conclusions lead on naturally to the consideration of the third method of diagnosis of ankylostome infection.

(3) The presence of certain clinical symptoms -It is obvious from what has just been said that it is impossible to diagnose ankylostome infection clinically There is no essential relationship between the state of health and the presence of infection. There are no clinical symptoms by which ankylostome infection It must not, however, be for a moment understood that it is here stated that ankylostomes may not cause symptoms is no possible doubt that they may and do that is intended, is to emphasise the fact that ankylostome infection and ankylostomiasis are quite different things It is further obvious that

it is not justifiable to diagnose ankylostomiasis in India from a conjunction of anæmia with the presence of a few ankylostome ova in the In parts of India limited microscopic examination has shown ova in as many as 80% of the population, and at the same time causes of anæmia other than ankylostomiasis are very common There is no justification for assuming that the anæmia is due to the ankylostomes unless the amount of infection, as shown by the number of ova, is a large one few ankylostomes cannot in the long iun produce ankylostomiasis, for if it were so about 80% of Indians would suffer from the disease. that the finding of one egg per slide means an infection of less than 10 worms Although my own figures do not bear this out, it is a point well worth further investigation. Another statement which may well be tested is that by Nichol, who states that 500 worms must be present for six months before they can produce symptoms these two statements are substantiated, it means that ankylostomiasis cannot be diagnosed unless there are over 50 ova found in each fæcal slide, and anæmia is present

Whether or no these figures are finally proved to be correct, it is at least certain that unless the ova are numerous the cause of the anæmia must be sought in another direction Ankylostomiasis is, in the writer's experience, comparatively lare in In some parts of India it is reported as a veritable scourge. Knowledge of the intensity of ankylostome infection and of the presence of ankylostomiasis in various parts of India is badly wanted, and if the accounts of such investigation are supported by clearly stated clinical and pathological data, they are likely to be of permanent It may be of interest to mention here that ın a note on a recent antı-ankylostome campaign in America the average number of worms passed per case was over 1,000 The average number passed in the Berhampore cases is 17 5 two sets of figures are obviously in no way com-In the one series it is cases of ankylostomiasis which are being treated, in the other, healthy individuals who may be looked upon merely as carriers In America, the question of the treatment of these carriers does not seem to have arisen, possibly their presence is not suspected In India most men of the lower classes are carriers

A point well worth investigation is whether ankylostomiasis is equally readily produced by infection with Agchylostoma duodenale, and Necator americanus, and whether Agchylostoma ceylanicum is ever present in sufficient numbers to produce symptoms in man. The first two worms were found, in the aggregate, in nearly equal numbers in the 150 cases examined in Berhampore, the total numbers being 1,322 and 1,283 respectively, whereas, although A. ceylanicum

was found in 14 cases, only 20 worms in all were recovered. Such comparative figures in the case of sufferers from ankylostomiasis in various parts of India would be very valuable.

Prophylans —The question of the pievention of infection by ankylostomes is closely bound up with a knowledge of their life-history which is briefly as follows The ova are passed in a state of segmentation, the latter process continuing and finally resulting in the formation of an embryo which escapes from the shell into the surrounding fæces It grows to a certain extent and then its cuticle separates forming a sort of cyst round it After bursting through this cyst it undergoes certain changes preparatory to parasitic life and finally encysts a second time is now mature and ready to leave the fæces for water, which is now its natural habitat until it gets the opportunity to infect some human being Whether eggs develop into mature depends on whether conditions are favourable These conditions are as follows A very small amount of oxygen is necessary for the development, the temperature must be between 54° and 104° to 113°F At the lower temperature 13 days is required to reach maturity, and at 68°F only 5 days, this last period being the minimum limit within which maturity is ever reached Sunlight is not haimful noi is excess of water in itself, though it may act indirectly either by diminishing the amount of food available or by favouring decomposition. Complete desiccation kills both eggs and larvæ By far the most injurious agent is decomposition, larvæ cannot develop and cannot live if decomposition is great, and artificially the easiest way to real larvæ is to mix the stool with animal charcoal Having attained maturity the natural habitat of the larvæ is, as stated, water, and under natural conditions they are washed by rain into pools and tanks The mature encysted larvæ are active, making wriggling movements which are feeble at low temperatures and vigorous at higher ones When suspended in clean water these movements are incapable of producing any change in position, the laivæ cannot swim about, and sink inevitably to the In a tank or pool they are to be found only in the mud at the bottom, so that the clear water of an infected tank is not infective, but will of course become so as soon as it is fouled by being mixed with the mud Although in clear water the larvæ are powerless to change their position, yet if they come into contact with any solid particles they can readily and rapidly progress by pushing up against these these circumstances two effects of practical importance are noticeable The first is that the larvæ tend to climb against gravity In a heavily infeeted stool this is very evident, for the masses of mature larvæ are actually visible as white piocesses protruding from the surface of the stool,

and by their united movements producing a waving effect as if they were white flames, while if a piece of stick be placed upright in the stool they will climb up it in numbers and produce the same flame-like effect at its tip till they dry up and perish Further if the stool be kept in a Petri dish it is useless to look for the mature larva-They will be found in numbers in in the stool the water of condensation on the inner surface of It is obvious that this climbing tendency of the mature larvæ will tend to bring them into contact with the skin of their host The second practical effect is their boring tendency the microscope they can be watched trying to burrow between solid particles on the slide, and in this process they are apt to force themselves out of then encysting membrane If a drop of water containing laivæ is placed upon the skin, by the time that drop of water has dried nearly all the contained laive will have forced themselves out of then encysting membranes and have penetrated the skin, so that a scraping of the epidermis over the spot will show nothing but a number of empty cysts, a few larvæ still contained in cysts, and of course epithelial cells If the piece of skin on which the drop of infected water was placed be cut out and sectioned, the larvæ will be found in different places according to the time which has elapsed since the infection took place At first they will be found in the hair follicles, and in the horizontal fissures of the epidermis, while later they will be They then take that road found in the dermis which will lead them to the gut with the greatest certainty and with the least evention to themsel res, that is to say, they boil into a capillary. Once in it they are carried without any excition of then own to the lungs, and here their boring instinct comes into play again, and this time they bore then way out of the capillaries of the lung into the alveoli Once here their boring instinct seems to be lost, or at least lessened, and a number of them find their way into the bronchioles where the ciliated epithelium wafts them along, aided by their own movements, till they are carried through the trachea and larynx to the œso-Here they are washed down into the stomach with drink or saliva, and so reach the So strong is this burrowing instinct among mature laivæ which have not passed through the lungs that even if swallowed they burrow into the capillaries of the stomach and reach the lungs to make a second entry into the stomach in the manner, and at the stage of growth in which it is natural for them to do so it is obvious from the strength of this burrowing instinct that the larvæ must rarely have an opportunity of gaining access to the stomach of their host by being swallowed, but that their normal mode of entry is through the skin Having reached the intestine the larvæ undergo two further encystments which escape from the

encysting membrane before they reach the adult form, and eggs begin to appear in the stool about 6 weeks after infection Regarding this method of infection through the skin it is well known that a pustular skin eruption sometimes precedes the development of ankylostomiasis certainly cannot be traced in the great majority of cases of ankylostome infection It might be thought that, considering the filthily septic character of its antecedents, no larva could possibly penetiate the skin without producing suppuration. It must be remembered, however, that, although the encysting membrane is probably extremely septic, yet the contained larva is quite aseptic When it forces its way through the end of its encysting membrane, it leaves this septic encumbrance on the surface of the epidermis, and itself, being sterile, penetrates into the tissues of its host without producing suppuration It will be only if the larvæ have prematurely escaped from their cysts, and have themselves become septic, that one has a right to expect symptoms resembling the ground-itch of This statement is not invalidated by the fact that, in the case of intense experimental infections over a small area of skin the affected part becomes 1ed, inflamed, and itchy, but without

It is plain then that for mature laive, that is larvæ in a stage capable of infecting man, to develop, the stool must be kept moist and free from excessive decomposition for from 5 to 13 days, and that the mature larvæ so formed must then have access to water, which must then come in contact with the skin of some human being, or must be drunk by him obvious that a combination of these conditions ın an Indian Jail is unthinkable and impossible Although the actual effects of trenching and of septic tanks on ankylostome larvæ are, I believe, unknown, yet one can say that the possibility of infection in a jail can be looked upon as non-existent Certainly infected cooks and water-carners cannot pass on the infection to other prisoners The whole question of the prevention of infection is merely a matter of simple hygiene such as is obligatory in a Jail, and, since the life of an ankylostome is necessarily limited, every superintendent who has his jail in an ordinary sanitary condition is, by the mere fact of thus preventing re-infection of his prisoners steadily reducing the amount of ankylostome infection among them, so that in comse of time they undergo a process of natural cure—provided that their sentences are long enough long they should be to effect this is another point which requires investigation

Agchylostoma duodenale and Necator americanus are either actually or practically parasites of man and of man only, and in then prevention the proper disposal of human night-soil is alone

Agchylostoma ceylanicum is a noimal parasite of dogs and cats, and in order to prevent infection by men with it the destruction of the fæces of these domestic animals is necessary. In the present state of our knowledge it does not however seem necessary to take any elaborate steps in this direction

### DESCRIPTION OF PLATES

Figs I to VIII Ankylostomes and Oxyurias x about 20 All are lying on their right sides, the venter is to the left and the dorsum to the right in all these figures.

I and II Necator americanus
III and IV Agchylostoma ceylanicum.
V and VI Agchylostoma duodenale
VII and VIII Oryunas vermiculanis

Figs. IX to XII Ova of Ankylostomes and Oxyunas Ova of Neculor americanus.

Ova of A ceylanicum from the uterus of the female.

XI Ova of A duodenale XII Ova of O vermicularis.

AIII to XV Lateral optical section of heads of ankylostomes

A duodenale

A ceylanicum. The oral cavity is deepel in proportion than that of A duodenale

Necator americanus The oral cavity is as broad as it is long.

XVI to XVIII Heads of ankylostomes looked at from the dorsum, so that one looks down into the doisally directed mouth.

XVI A dvodenale IIVX XVII A ceylanıcum XVIII N americanus

XIX to XXI The dorsal lobe of the male bursæ of the 3 human ankylostomes

XIXA duodenale XXA ceylanicum N americanus IXX

XXII to XXIV Lateral view of the male Figs burse of the same

IIXX A duodenale XXIIIA ceylanıcum XXIV. N americanus.

Fig XXVScale of figs IX to XII IVXX Scale of figs XIII to XXI

XXVII Scale of figs XXII to XXIV

### EVPLANATION OF LETTERS IN THE PLATES

O. Otal opening

C Oral cavity.
W Chitinous wall of oral cavity

T. Vential teeth

Vential semilunes Ventral triangles

Lateral lancets

Median dorsal tooth The duct of the dorsal cesophageal gland penetrates it

G Esophagus

P Prebursal papilla in figs. XXII to XXIV.

## EYPLANATION OF FIGURES IN THE PLATES

1 and 2 Ventual rays

Externo-lateral ray

Medio-lateral ray

Postero lateral ray. Externo dorsal ray.

7 Dorsal 1ay

## DYSENTERY IN THE RAIPUR CENTRAL JAIL, C P

BY R P RODGERS,

Military Assistant Surgeon, Supdt, Central Jail, Raipur

This jail has been notorious as one of the most unhealthy in these Provinces during the last 16 years, chiefly by reason of periodical out breaks of dysentery—some of which have apparently been of small extent but great virulence (1907), while others which have caused much illness have been singularly free from mortality (1902), and others again have been the cause both of high incidence and mortality (1897, 1900, 1910 and 1911).

The epidemics have reached then height usually during the moist, waim months of August and September, but the highest moitality has occasionally been found to take place during the months of November and December of the succeeding cold weather

Table I indicates the extraordinary yearly vagaries of the dysentery group of diseases in the Raipur jail, and it shows the extent and virulence of the epidemic of the years 1910 and '11 and the healthiness of the year which followed. For the purpose of illustrating the seasonal prevalence of dysentery during these three years a chart is attached showing the monthly incidence, mortality and rainfall

It is chiefly, however, with the closing phases of the epidemic of 1911,

TABLE I.

RAIPUR CENTRAL JAIL

Showing incidence and mortality from Dysentery
for the past 17 years 1896-1912

	<del></del>				
Year	Number of admissions for Dysentory	Number of denths from Dysentery	Dysentery cases mortality per cent	Total death rate for the vear per mille	REMARKS
1896 1897 1898 1899 1900 1901 1902 1903 1905 1906 1907 1908 1909 1910 1911	28 95 61 47 46 33 101 47 25 28 16 24 40 195 241 35	435180030000785930	14 3 24 2 8 0 2 1 17 4 6 4 7 1 12 5 29 1 20 0 10 8 25 1 13 6 5 7	18 4 62 3 42 2 41 3 66 1 17 4 15 2 19 5 0 4 14 0 18 8 37 31 44 4 24 6 105 4 128 6 8 7	

and the figures of 1912 that these remarks have to deal, but before passing on to deal with these

it may be briefly stated that the outbreak of 1910 was due to the arrival in April of that year of 79 prisoners of the Baster State many of whom had been wandering in the jungles for several weeks (for fear of capture by the police owing to their being implicated in an insurrection), picking up a precarious living, mostly on forest fare, and who on being landed in juil dispirited and broken down in health provided food for that scourge of juils and standing eamps—dysentery

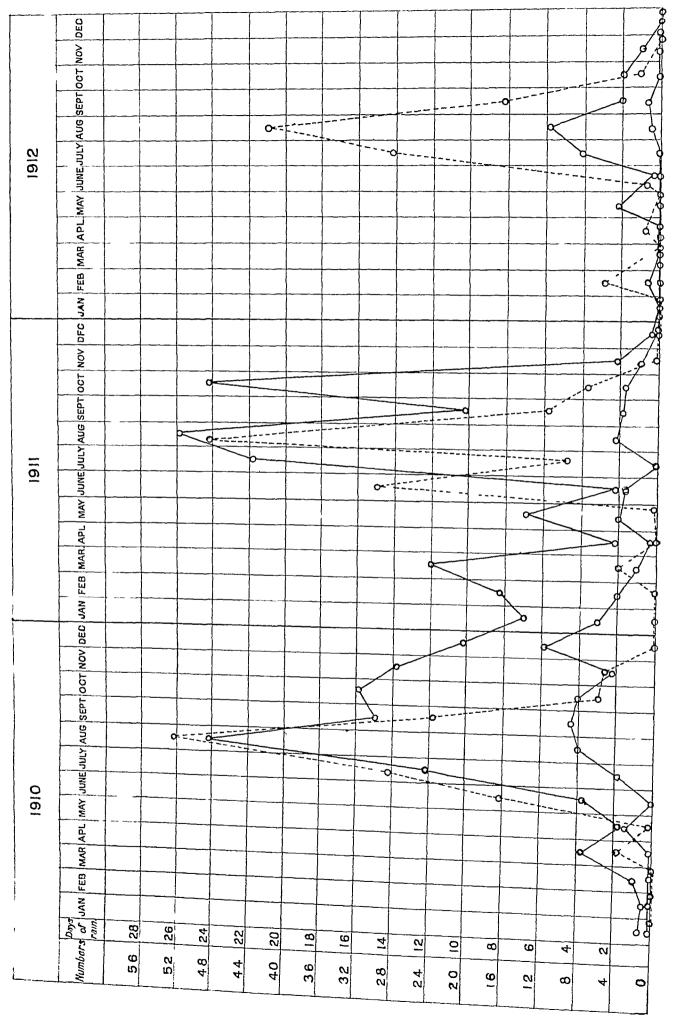
As will be shown later, no microscopic examinations were begun till the latter half of August 1911 and treatment with Major W II ('Forster's vaccine, prepared from the Shiga Bacillus, was introduced by the writer on his arrival towards the end of the following month

Dealing firstly with the epidemic of 1910 and '11 we find that the cause is obscure, and beyond attributing it in a general way to the influx of "carriers," in the shape of Baster State prisoners, it is impossible to say what cause or combination of causes, originated what eventually proved to be one of the worst and most prolonged jail epidemics on record on this side of India. Was the disease a hook-worm infection or was it Bacillary or Ameebic, or did it fall within the category of those dysenteries which are yet on debatable ground?

The case for hook-worm appears to be controverted by a perusal of Table II which shows that of those examined—all who are in jail after the 31st August 1911 and up to the end of December of that year—the sick and infirm together show a percentage of infection not greatly exceeding those in fair and good health, while those on medium labour and in tolerably good health had a slightly higher percentage of infection than the sick Again those actually suffering from dysentery had only a 10 % higher infection than prisoners in good health and on hard labour and in the case of one man on medium labour even the presence of at least 84 worms in his bowel did not appear to cause him much inconvenience, as he had been in fair health for some time previous to examination and treatment, and it was only the routine exammation and treatment of all prisoners in jail that brought the extent of his infection to light All this appears to put the suggestion of hookworm infection, as being one of the chief causes of the epidemic, out of court

That the Entamœba Histolitica was not the causative organism in the majority of cases was suggested because these organisms were observed only once in the stools of the dysentery cases which were examined between the 5th October 1911 and the end of that year, previous to that date examination with the high power of the microscope had not been undertaken and because

INCIDENCE AND MORTALITY FROM DYSENTERY IN THE RAIPUR CENTRAL JAIL DURING THE YEARS



Incidence in black Mortality in red Dotted Line=Ramfall

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WEIGHMENT CHARTS II

Of cases of Dysentery who improved on Methylene Blue.

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TABLE II

Showing prisoners found with Hook-worm according to classification of labour for the year 1911

Class of labour	Total number examined	No in whom Hook worms were not found	No in whom Hook-worm were found	Percentage infected	Remarks Largest No of worms found in each class of prisoners		
Hard labour Good health	261	154	Average 107 No of ova 476—41	41 00	34 in each of 2 cases		
Medium laboui	101	58	No of H worm 731—7 43 No of ova 112—23	42 57	84		
Fair health	82	48	No of H worm 368-8; 37 No of ova 132-4	45 12	55		
Indifferent health Infilm	22	11	No of H worm 195-5 11 No of ova 33-3	50 00	83		
Bad or Indifferent health	57*	33	No of H worm 171-17 24 No of 0va 62-24	42 11	29		
Bad health U Trial	48	33	No of H worm 224-10 14 No of ova 22-12	29 17	18		
TOTAL	571	335	No of H worm 178—5½ 236 No of ova 837—3½	41 33	303		
Dysentery cases	125	61	No. of H worm 1913—8	51 2	49		

<sup>\*</sup> Excludes those examined previous to admission into hospital

in a large proportion of cases the *post-montem* records show that the parts of the intestines mostly affected have been the descending colon and sigmoid flexure. It is not suggested that amoebic cases did not exist but that they were in a minority, and this supposition is strengthened by the finding of bacillary lesions in 4 of the 5 cases of dysentery seen *post-montem* by me in October and November 1911

It cannot, however, be definitely stated that the prime cause of the dysentery was the Bacillus Dysenteriæ (of Shiga, Hiss or any other) as no cultural methods or acid and fermentation tests were possible, but by reason of the improvement which set in the cases under treatment with the Shiga vaccine, it seems justifiable to conclude that a measure of the success attained, by the immediate fall in the mortality ratio from 15 73 previous to the introduction of the vaccine to 658 subsequent to it, including the very bad cases on hand at the time the vaccine was begun, was due to the vaccine, which being that of a specific organism and not a polyvalent vaccine appears to point to the Bacillus Dysenteriæ of Shiga being among the chief causes of the epidemic

Whether any other intestinal organism contributed to the general unhealthiness and mortality in the year 1910 and '11 it is difficult to say, but it is significant that in the stools of 9 of the 14 bad cases of dysentery examined by the writer after 8th October, certain flagellate organisms, corresponding to the trichomonas hominis were

observed, and in the stools of all 4 of the dysentery cases that ended fatally after that date the organism was present during life in large numbers

Before however coming to an opinion on the figures of 1911 it was decided to "wait and see" what the year 1912 would reveal. During this year there occurred 35 cases of dysentery with 2 deaths and 15 cases of diarrhea with no deaths

#### Of these 35 cases

8 were admitted to hospital for dysentery within 10 days of arrival in Jail,

17 were admitted to hospital for dysentery between 10 days and 3 months of arrival in jail,

10 were admitted to hospital for dysentery after having been in jail over three months

Of these 8 had been inoculated with Shiga vaccine prepared by Major W H. C Forster, IMS, and subsequent to three injections suffered from dysentery, this figure reckoned on a fluctuating population of about 280 inoculated prisoners, gives an incidence of 28 6 per mille of those most liable to the disease, the infirm and prisoners on light labour, as all infirm prisoners and most of those on light labour had been inoculated in 1912 as a prophylactic measure, while the 27 pusoners not previously inoculated and who suffered from dysentery were from among about 450 prisoners in tolerably good health, incidence 60 per mille of the 8 cases who had been protected by moculation and took the disease, 5 were mild or moderately severe and 3 severe cases—of these latter two w ere believed to be amobic—one reacted immediately to specacuanha and one to emetine hydrochloride Entamæba histolytica was also found in the stools of the latter case In the stool- of the remaining severe case the flagellate organisms mentioned swarmed almost conpreviously tinuously and a certain degree of improvement followed the use of methylene blue in 2-grain cachets twice daily, combined with a daily enemata of 10 grams to 3 pints of water of these cases which had been inoculated with Shiga vaccine gied Among the 27 cases not previously inoculated, there were 21 mild or moderately severe cases, while the remaining 6 were severe cases Of the 6 severe cases 2 died (mortality 7.4%) One case died of perforation

tubercle and pneumoma in which Shigh vaccine had been employed. I have not observed any illeffects which I could justly attribute to the vaccine. I have used it on a child of 12 months and two old men of 80 and in two cases in which terminal dysentery was feared the results have been encouraging.

In the fatal case in which the dysentery appeared to be of mixed type only 21 grains of emetine hydrochloride had been employed (mostly in doses of 1/3 of a grain) owing to my mability to procure any more in time, the three discrete depressed ulcers at the accum were found to have healing edges, but whether it was the insufficiency of the emetine or the presence of Mastigophora with which the stool continuously swarmed, and on which methylene blue had

TABLE III.

RAIPUR CENTRAL JAIL.

Abstract of Result of favoal evaminations made in 1912

Health of prisoners.	otal No of pri soners eximined according to class to of prisoners in whom Ankylostoma ova were found latio per cent in fected with Anky- lostoma		per cent sd with A	TOTAL NO OF ANKYLOSTONA ON A AND WORMS FOUND		in whom Ox- is ora were	lo in whomStrongy lus embryo were found	in whom As is Lumbrecoides e found	in whom Am v of any kind v found	ın whom Trenia 1 were found	to in whom I lagol- late pressites were found	o per cent in ced with Fligel
	Total sone	No who ova	Ratio fecte loste	Ova	Worms	No m yuris found	No in fus	No 11 Caris were	No 11 mbre 11 oro	No 1	No m late foun	Ratio p feeted late or
Gord Fan Indifferent Bad	311 246 196 57	110 105 61 14	35 37 36 71 31 12 24 54	252 192 116 26	309 265 166 35	2 7 2 2	6 7 1 1	4 2 1 1	30 12 12 12	3	88 70 56 15	28 3 24 4 28 5 26 3
Total	850	290	34 11	586	774	13	15	8	58	3	229	26 9
Dysentery cases Diaithær ,,	35 15	15	42 82 6 6	2ñ 2	44		2		15* 4	1	31 13	88 57 86 66

\* Of these only two bore the characters of Amæba Histolytica

Percentage of Anl vlostoma infection by
trades and professions
Government and private servants
Agriculturists
All others

2212 0011015
of the bowels 5 days after the administration of the second dose of vaccine, and the other 4 days after the third injection. The post-mortem examination in the latter case revealed a large patch of raised ulcers at the last 12 inches of the gut and three circular depressed ulcers at the cocum, suggesting a mixed infection. In the man who died of perforation after the second
injection of Forster's vaccine the mucosa was
found congested and inflamed throughout its
extent, suggesting an acute bacıllary dysentery
In both cases which ended fatally the vaccine
appeared to have a negative phase of some in-
tensity lasting from 3 to 6 days In about 30
per cent of the other cases of dysentery which
received the vaccine there appears to have been
a negative phase, characterized by an increase of
the symptoms, but this was easily recovered from
and in these and other severe cases of typhoid,
and in these and other severe cases or sylmond,

Total No	Percentage	
examined	infected	
116	33 6)	
497	386 If I and 3 are taken altogether the	10
237	249) percentage works out at 277	

only a transient effect, it is difficult to determine but the man sank and died, the pulse getting slower (60 per minute) towards the end, and the respiration in the previous 24 hours sinking to between 6 and 8 per minute, and from this most unusual death it appeared to me possible that the system was at the end of its immunity-forming power that he required to be passively immunized and that serum therapy might possibly have secured a different result

Table III shows the results of examinations of stools during the year 1912. The ankylostoma figures are not very dissimilar to those of the previous year and do not suggest that the ankylostoma duodenale had anything to do with the cases of dysentery that occurred

An interesting point has however been brought out by the percentage of agriculturists found infected (386), compared with that of all the

trades and professions found harbouring the parasite (277), but this comparative infestation appears to be less than that found in Burmah

Among the amobe found in the stools, those of only two cases were sufficiently large, active and with well marked ectoplasm and could be classed among pathogenic amœbæ; one case in whom these were found responded immediately to emetine hydrochloride, the other case, a severe one, was released from Jail, uncured, after having had 5 giains of emetine 5 injections of Forster's vaccine, the castor oil, eucalyptus and chloroform treatment for ankylostoma for three days, and prolonged treatment with methylene blue for Mastigophora Von Puquet's tuberculm test was negative, and after a stay of over two months in hospital I was altogether at a loss to conjecture to what organism his dysentery might be due

Flagellate organisms which are morphologically somewhat similar to the Trichomonas hominis (Davaine) with three anterior and one posterior flagella, and with an undulating membiane were found fairly commonly Captain R B. Seymour Sewell, I VIS, was kind enough to verify these organisms for us Then size, however, was very dissimilar, as those mentioned by Castellani are  $18-25\mu$  in length, whereas these seldom exceeded  $10\mu$  in length and were usually 6 or 7. The table shows that of the stools examined, in 229 or 27 per cent of all cases the organism was found, while turning to the 35 dysentery cases 31 or 88 5 were found infected and of 15 diarrheea cases also 13 had the organism; whether these organisms found a congenial soil in the liquid fæces in the large gut and increased in consequence, being haimless commensals, or whether they were the causative organism in a certain number of cases, or whether it was then combination with others that gave them importance, is a problem which is difficult of solution, but I enclose a few charts (Chart II) which show the improvement in weight that followed the administration of methylene blue in certain cases of dysentery which failed to improve on vaccine It is also significant that in the stools of those cases of dysentery and dianhora examined in the town of Raipun and in whom these disorders appear to be less chronic and severe, the presence of Mastigophora have not been observed in any thing like the numbers that they have been found among the inmates of this jail I found that these organisms were capable of living in water for months at 100m temperature 55°-108° They speedily became encysted when placed in The stools in which these organisms a hottle abounded were usually liquid and frothy

Preatment—Forster's vaccine prepared from the Shiga bacillus has been employed both as prophylactic and curative, and all infirm prisoners and those in indifferent health inoculated. In

those suffering from dysentery as well as for prophylaxis the initial dose has been '2 c c subcutaneously followed by 3 c c. in a fortnight and 4 c c after a second fortnight—this has been the usual interspacing, but occasionally it has been reduced to 10 or even 7 days. In the latter case the reaction is often of moderate intensity, in the others beyond a little local pain and swelling the vaccine causes no inconvenience. The usual mumber of infections is 3, but in certain obstinate cases I have given 6 and 8 injections and in one case 14

Emetine hydrochloride was administered hypodermically after the method introduced by Lieut-Colonel Leonard Rogers, i M s, first in 1/6 grain doses twice a day and later in ½ grain doses twice daily, and appears to be a specific in amæbic cases.

The treatment of Mastigophora with methylene blue proved of benefit in some cases, but in at least three others in which they swarmed methylene blue failed to have any effect. The usual method of administration was that recommended by Castellani gn ii b. d per os and gis x ad Omper rectum—for a fortnight

From the 19th August 1911 and to the 30th June 1912, all prisoners found passing ankylostoma ova were treated with chloroform, eucalyptus and castoi oil in divided doses, after the method advocated by Sii Patrick Manson, but from the latter date I have discontinued the practice and only resort to treatment in those cases that show heavy infection

Every patient has had a dose of castor oil on admission, and symptomatic treatment for pain and sleeplessness and stimulants for those organs that required them. Rest and milk diet is usually ordered and in very severe cases whey Alcoholic stimulants have usually aggravated those cases which appeared to need them and adrenalin and other tonics have been used instead.

Quarantine for 2 months on discharge from hospital after dysentery is required and only 2 cases relapsed in the year 1912 from this gang

### Conclusions

- I In the Raipin Jail more than one organism that may give rise to dysentery appears to be present.
- 2 That the bacillus dysentenæ of Shiga-Kiuse is possibly the causative organism in the majority of cases
- 3 That amoebic cases exist but are in a minority and emetine hydrochloride appears to have good results in these cases.
- 4 That the Trichomonas hominis appears to be present in a large number of cases of bowel-complaints and its presence may influence the course of a dysentery
- 5 That the treatment of dysentery with Forster's vaccine has given good results (prob-

ably in unmixed Shiga cases) but that prophylactic inoculation appears to be of greater value

6 That vaccine brewed from the Shiga bacillus by Major Forster appears to have a negative phase in certain cases but not one of sufficient intensity to contra-indicate its use, except in desperate cases

7 That prophylactic inoculation with the vaccine is a harmless measure, and is capable of being employed also in those cases where terminal

dysentery is feared

### TREATMENT OF SNAKE POISONING

BY F WALL,

MAJOR, IMB,

#### Almora

In a case of reputed snake-bite one's first duty is to ascertain whether the wound is a poisoned one or not, in other words whether one has to deal with a simple punctured or lacerated wound, or a case of ophitoxemia. In establishing a diagnosis one should be guided entirely by the local signs, for one reason because they are quite characteristic, and for another, and a more weighty one, that those signs are evoked within a few minutes, or even a few seconds of the casualty

The cardinal signs of a snake-poisoned wound are (1) Pain of a burning or stinging character, immediate or almost immediate in onset, and usually persistent, unlike what obtains in a (2) Swelling which is simple trifling wound immediate or almost immediate in onset, and progressively increasing hour by hour charge of blood or bloody serum The discharge is thin, and persists for many hours, even for a day or longer though the wounds are otherwise These three signs are usually associated, but the presence of any one of them should leave no doubt as to the injection of venom, whereas the absence of all three justifies the conclusion that the wounds have not been poisoned

#### SYNCOPE

One of the commonest and at the same time most formidable complications likely to be met with in cases of both snake-bite and snake poisoning is syncope. This fact cannot be too strongly emphasised, since many deaths indubitably occur annually in India from the bites of harmless animals. Those deaths are the result of the depressing influence of fright upon the heart

It follows from this that even where one may confidently exclude the possibility of snake poisoning, it is most unwise to lose sight of a patient who is under the belief, or the suspicion that he may have been bitten by a snake. Such a patient should be admitted to hospital, every attempt made to allay any fears he may have of the possible consequences, and his pulse and surface

temperature should be frequently noted, so that any tendency to syncope may be aborted Should such a patient die, it is almost certain that his syncope will be wrongly ascribed to ophitoxemia Farther the wounds, however insignificant, demand attention, lest sepsis supervenes. Death from septicæmia may also be wrongly ascribed to ophitoxemia

The treatment of snake poisoning may be discussed under the following heads —

- (1) Preventive including (a) medicinal and (b) mechanical
  - (2) Antidotal, i e., Antivenene
- (3) Symptomatic including drugs that operate on (1) the nervous system such as ammonia, strychnia, and alcohol and (2) on the enculatory system and blood such as calcium, adrenalin, and pituitrin

(4) Local, i e, antisepsis.

#### PREVENTIVE TREATMENT

This aims at preventing the absorption of venom into the general circulation, or reducing the dose absorbed to a minimum

(a) Medicinal —Various chemical notably permanganate of potash, hypochlorite of lime, chloride of gold, nitrate of silver, etc, are known to render snake venom of all kinds innocuous when mixed with it "in vitio." Unfortunately "in vivo" it is most difficult to bring any of these agents into chemical relationship with the snake venom injected which is locked up most tenaciously in living tissue Surg -General Bannerman from a long series of experiments on dogs in the Parel Laboratory with KMnO2, found that thorough and expeditions though his techinque was, life was raiely saved In actual practice the results would almost certainly be less favourable In spite of this I venture to think that this salt should be given a trial in all cases other than cobra and daboia poisonings where antivenene is a known specific as it appears possible if not actually probable, that in some cases where the dose of other poisons injected is but little above the lethal, sufficient venom may be neutralised to reduce the dose to something sub-lethal. To achieve the best results our aim should be to bring as large a surface of the poison bearing tissue into relationship with the say as possible, either by free excision, or by closely set parallel incisions through the There is no reason to expect swollen tissues that any other agents of this class will prove any more satisfactory than KMnO2

(b) Mechanical — These measures include ligature, excision, and amputation Fayier tested all of these in the lower animals with most discouraging results. It was found extremely difficult by ligature, as usually practised with a simple cord to arrest the circulation in a limb of the dimen-

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sions of a dog's leg or even a fowl's thigh sufficient venom being absorbed to kill the bitten subject Life in some cases was not even pro-It would be much more difficult by this means to prevent the absorption of poison m a human limb If ligature is to be used at all Esmarch's rubber tube or a rubber bandage should be employed, but the disappointing results following almost immediate excision and amputation makes it extremely doubtful whether ligature can be of any avail under any circum-As regards excision the most that can be said for it, based on Fayrer's experiments, is that under very exceptional circumstances, circumstances, indeed, that could not be imitated in general practice the lives of dogs and fowls bitten by cobras were prolonged, but not saved same remark applies to Fayrer's experiments where amputation was practised within a couple of seconds of a cobra bite As however the lethal dosage of venom injected into a dog or foul at a single bite is considerably greater than it is in the human subject, excision seems a justifiable procedure in cases other than cobra and daboia poisonings, where antivenene is a known specific—since a dose slightly in excess of that lethal for human beings may be reduced to something sublethal

### ANTIDOTAL TREATMENT

Antivenene is the only agent that has any claim to rank as an antidote in snake-poisoning is, it is an antidote which has been demonstrated experimentally It is however specific in its detion like other antisera, hence the Kasauli product prepared as it is from horses that have been rendered immune against the poisons of the cobra and daboia is only antidotal to the toræmiæ of these two snakes Its success depends on (1) The freshness of the preparation It loses 5 to 10% of its virtue in the first year, and probably more subsequently (2) The time that has elapsed since the casualty The shorter the time, the better the chances of success The method adopted The intravenous method is the more rapid, and its effects more pronounced than the intramuscular After paralytic symptoms have appeared this method is impera-(4) The dose employed The initial dose should be 100 cc, and this should be repeated at intervals of quarter of an hour so long as symptoms show a "crescendo" movement

### STMPTOMATIC TREATMENT

The third line of treatment aims at controlling the effects wrought by snake poison after absorption into the system. These effects are (1) depression to the degree of actual paralysis of the central nervous system as is seen in the

Colubrane types of poisoning, i.e., cobras kraits, hamadryad, and the sea-snakes (2) On the heart blood vessels, and blood such as is seen in Colubrane toxemiæ and in a more pronounced degree in Viperine toxæmiæ, ve, notably in daboia and echic poisonings To counteract these effects many agents have been expenmented with, some indicated through a knowledge of Western medicine, others vaunted as remedies by natives of the East None hitherto has fulfilled expectations The most important are (1) Nerve Strmulants The chief action of Colubrane poisons is to powerfully depress the central nervous system and produce paralysis, including that of the respiratory centre which occasions death It seemed reasonable to expect that powerful stimulants to the nervous system including the respiratory centre such as Ammonia, Strychnia, and Alcohol might subdue or even control the influence of Colubrine venom, but experiment has proved otherwise Ammonia was tested by Fontana in the latter half of the 18th Century, and condemned by him as useless Fayrer and Vincent Richards a century later found it useless against cobra venom It was tried by Hilson in a case of cobra poisoning in the human subject with no good effect, and also in a case of krait poisoning by Jadub Kristo Sen with no better result Strychnia was tried by Fayrer who found it "worse than useless,' and later Elliot experimented with it in human subjects, and in the lower animals, and considered its action so vicious that he wrote a pamphlet warning the profession against its use under the significant title "The Dangers of Strychnine in Snake-bite" Alcohol similarly was given a fair trial by Fayrer, but no success attended its use Vincent Richard who also experimented with it was so impressed with its dangers that he expressed the opinion that "Every person who resorts to it should be punishable for malpractice , (2) Drugs affecting the circulation and blood The heart in snake poisoning (with the exception of cobra and common krait poisonings) labours under great Over and above the general nervous depression the vaso-motor centre may be paralysed in both Colubrine and Viperine toxemiæ venoms, too, have a direct weakening influence over cardiac muscle Hæmorrhages which so frequently occur reduce the blood supply to the heart, and its centre in the brain, and the destruction of red blood cells means that the heart is supplied with an impoverished quality of blood Over and above all these depressing influences are those the outcome of emotion, especially fright From what we know of the action of certain drugs it seems probable that the effects of snake venom on the heart, and blood vessels, may be subdued if not actually controlled, but after the lesson learnt from the action of drugs on the nervous system, one must

refrain from being too sanguine in the present The drugs however, that appear to offer best chances of success are calcium, the adrenalin, and pituitrin In the production of hemorrhage snake venom acts in two ways Firstly the constitution of the blood is altered and its coagulability is reduced, probably by decalcification as in the case of citric, phosphoric and other acids Secondly, venom damages the lining membranes of arterioles favouring the leakage of the blood that is already unduly thin This effect on the blood is seen in Colubrine toxemie, but 15 much more pronounced as a rule in Viperine poisonings Now it seems probable that the conditions just referred to that favour hæmorrhage may be completely removed by the action of calcium, adienalin, and pituitrin

Calcium—As far as I am awaie has never been pushed in cases in the human subject where its trial has not met with an adequate response from small doses internally It can be given internally in one drachm doses every 4 hours, but its best effects are to be obtained by hypodeimic injection of half diachin doses It will restore the coagulability of blood attenuated by citric and phosphoric acids, etc., and we may presume until proved otherwise that it will do so in the of snake poison From experiments recently conducted in Copenhagen on tadpoles it would appear that calcium has another action and that it actually reduces the toxicity of cobra venom

Adveration—This appears to be an ideal drug in ophitoxemia. It not only powerfully invigorates the heart muscle which is enfeebled by snake venom, but by constricting the small blood vessels it tends to control the hæmorihages so frequently occasioned in snake poisoning. To obtain the best results hypodermic administration should be resorted to the dose being 10 minims of a 1 in 1000 solution.

Private in —This acting in exactly the same way as adrenalin, but being more potent and its effects more sustained, is another ideal drug for trial in snake poisoning

It should be given hypodermically in 1 cc (18 minim doses) The combination of calcium with either adrenalin or pituitrin appears to offer great possibilities if pushed judiciously and subcutaneously

In every case of snake poisoning syncope is to be expected. It should be looked for and promptly treated, otherwise even anti-venene will not save the subject bitten by cobias and daboias, and the other measures recommended for other toxemize will prove unsuccessful

Local treatment — The wounds however trivial, should always receive attention. They should be laid open and whether or not excision or multiple incisions with KMn(), are employed should be antiseptically dressed.

## A CASE OF COBRA POISONING RECOVERY

BY P CARR WHITE,

THE snake was caught and identified, the cobin being dark slate colour the common variety in Rajputana.

The case appears to me to be of sufficient interest for publication although it does not in any way prove the value of any particular kind of treatment

The man, aged about 30 was bitten on the 31st of July about the middle of the posterior surface of his bare forearm

His master, a man of intelligence and resource, being close at the time, instantly applied a very tight ligature to the upper aim and made very free incisions with a sharp razor through the fang marks which bled copiously. Medical aid was sent for, Sub-Assistant Surgeon Hai Narayan arrived  $1\frac{1}{2}$  hours after the bite and at once rubbed in powdered permanganate of potash

Shortly after this, about 2 hours after the bite, the patient complained so much of the pain caused by the tight ligature that it had to be removed

There were absolutely no symptoms of cobia poisoning

The man after developed a pustular eczematous condition of the aim of a severe type spreading from the incisions which may have been due to sepsis from the razor, or some carelessness. Afterwards, the infection was a mixed one due to strepto-staphylo-diplococci. The question here is what part did the rubbing in of permanganate of potash play in his recovery? I am inclined to think the free bleeding caused by the incisions with a sharp razor washed out the cobra venom and saved the man's life, no doubt this was the best instrument to use for the purpose

Reports occasionally reach me of the recovery of cases of snake-bite amongst villagers by quickly burning out the bite with whatever is available at the time, but the snake is never identified

Perhaps more recoveries might occur in cases seen early if bleeding was more encouraged. The idea now seems to be as far as I have heard to make rapid incisions and rub in permanganate of potash crystals. Bleeding could easily be encouraged by Biers glasses, the artificial leech or cupping glasses before rubbing in permanganate of potash, and whatever is used for cutting should be very sharp. Washing the venom out of the wound by free bleeding appears more rational than neutralizing it in the wound by a chemical whose important part seems to be to act on what is left.

I think the former has been somewhat neglected in district dispensaries, and the medical

mind has become fixed entirely on chemicals, perhaps this accounts to some extent for the varied opinions on the value of permanganate of potash in snake-bite. I should mention that this patient soon after receiving the bite was given a dose of medicine, said to render anyone immune to snake poison, by a snake charmer who was certainly accustomed to working with snakes, but I found all the cobras in his possession had their fungs broken

### EPIDEMIC CEREBRO SPINAL MENINGITIS

BY SUDHONARAIN, LM & S. (Punjab),
Medical Officer, Kashmir Imperial Service Troops, Salwani
Cant., N. W. R.

The following cases occurred amongst the Mahomedan section of the Kashmir Imperial Service Infantry Depôt The cases are of interest both on account of the rarry of the disease and also on account of their occurrence in a Military Station and steps taken to check the disease

Case I—31d February 1912 Shahsawar, aged 20, was brought to the hospital on a charpoy at 11 Pu He was in a condition of deep coma

Temp —105° F
Pulse —full and rapid
Breathing—deep, stertorous and laboured
Carneæ—insensible, pupils slightly dilated
Liver and spleen—normal
Lungs—resonant
Muscles—loose all over the body

The pulse gradually became thready and rapid, and the patient died 1 A v the same night

Previous History — Patient was perfectly healthy till the evening of the 2nd February On the morning of the 3rd he felt cold and later on got fever. At about 6 r m in the evening he vomited some matter consisting of bile. Later his condition grew worse and he was emoved to the hospital

Case II—4th February 1912 Burhan Ali, aged 18, was brought to the hospital in an unconscious state at 4 rm. He was very restless and kept his eyes shut and made movements to cover his whole body including the face with blankets

Temp —102° F
Pulse—full and rapid.
Breathing—deep and laboured
Liver and spleen—normal
Lungs—normal

The tone of muscles was good at the time of admission and the patient struggled hard when an enema was given, but gradually he passed into a state of deeper coma, breathing becoming more deep, laboured and stertorous, muscles becoming loose, pulse becoming thin and rapid He died the same evening at 7-15 PM

Previous History—The patient was in perfect health till 12 midmight. The first symptoms that he complained of was fever with a sensation of cold. He had one comit consisting of bilious matter in the morning

Case III—5th February 1912 Mardan Ah, aged 16 The patient was brought to the hospital in a conscious state at I Am in the night. He complained of fever, severe pain in the front and back of the head and thirst

Temp -102 4° F. Pulse-full and rapid. Breathing-normal Liver and spleen—normal. Lungs—normal.

At about 8 AM he became very restless and despondent Pulse became very thin and feeble. He became intolerant to light and sound and kept his eyes shut At about 10 A.M the respiration became noisy and stertorous and the pulse could hardly be felt at the wrist At II AM he passed into a state of deep coma A purpuis rash was noted all over the body

The patient died at 4 PM

Previous History — The patient was in perfect health previous to his illness

Diagnosis—It was not till the occurrence of the 3rd case that it was suspected that these cases might be of the malignant type of cerebrospinal meningitis

The 31d case suggested the malignant type of cerebro-spinal meningitis and the successful precautions to check the spread of the disease further proved that this was the case Poisoning was excluded because the other messmates who took their meals with the deceased persons kept healthy

Points that were in favour of the disease being malignant type of the cerebio-spinal fever

- 1 Young age—All the three persons attacked were young recruits between the ages of 16—20
- 2 Season—The cases occurred in February the beginning of the spring season Koplick in System of Medicine by Oslei and McRae, Vol II, speaks of an epidemic in which also the first cases occurred in February
- 3 Overcrowding About double the number of recruits were occupying the barrack which ought to have been occupied by half the number
- 4 Sudden onset and rapid termination from the occurrence of the first symptom to death, the three cases took 17, 19 and 16 hours to die respectively
- 5. The following were the most prevailing diseases at the time
  - 1 Measles.
- 2 Mumps
- 3 Nasal catamb
- 4. Tonsili

All these specially predispose towards infection through the naies which is generally thought to be the way through which the meningococcus gains entrance in the system

- 6 Mental worry—Case I, Shahsawar, and Case III, Mardan Ali, had some cause for mental worry. The former had been discharged from the service and the latter had been transferred to Regular State Troops
- 7 Later experience—Case I, the success of the measures adapted to check the disease, and the limitedness of the cases itself are points which are also in favour of this diagnosis

After death there was good deal of white froth at the mouth and nose of all the deceased The post-mortem could not be performed on account of the objections raised by the relatives

Treatment was symptomatic in all these cases Some three or four cases admitted from the same unit complaining of fever and headache were given the ordinary fever mixture with antipyrin

The following measures were adapted to check the disease —

- Infantry Depôt barracks in which the cases took place were vacated all together and the rooms disinfected with sulphur Later on as advised by Col A J McNab. FR.Cs., INS, Superintending Surgeon, Kashmir State, the rooms were disinfected with Saponified Cressol before their re-occupation by the troops
- 2 All men were put in tents far away from the lines. Men of other units were ordered not to communicate in any way with Infantry Depôt men. Clothes and beddings in tents were daily exposed to sunshine.
- 3 Strict watch was kept over the health of the men in tents and anybody who took ill was segregated and brought to the hospital
- 4 The five contacts who lived close to the deceased men in barrack and where their messmates were further isolated
- 5 The men who acted as sick attendants of who carried the deceased men to the burial-ground were also isolated and accommodated in tents pitched near hospital compound

### A Mirror of Hospital Practice.

## STEAM STERILIZATION AND HINTS ON THE CHOICE OF A STERILIZER

BY E A R NEWMAN, MD (Cantab),
LIBUT COL, IMS,
Civil Surgeon, Alipore

Though sterilization by steam is in very general use, the conception of its action and its limitations is often not very clear. The choice of a sterilizer under these circumstances is a somewhat haphazard affair. I shall try in this paper to elucidate the question.

The germicidal action of steam depends on its coagulative power of bacterial protein by heat This explanation, however, only covers half the ground. If the temperature or degree of heat were the only factor, then hot air at a temperature at 212° F, ie, the temperature of steam at ordinary atmospheric pressure would be equally efficacious. The fact remains that it is not so. The important factor in the activity of steam is its latent heat, to which I shall refer later.

The different physical states or conditions of steam may be enumerated and defined thus .—

(a) Steam in equilibrium—or at rest

- (b) Steam in motion—or live steam
- (c) Steam generated at ordinary atmospheric pressure—simple or low tension steam
- (d) Steam generated at pressures in excess of atmospheric pressure—or high tension steam
- (e) Steam at the point of condensation—saturated or wet steam.
- (f) Steam at a temperature in excess of that at which it was generated, which thus raises it above the point of condensation or saturation—dry or super heated steam

There must of course be a combination of these physical states, thus low tension steam may either be at rest or in motion, while it must of necessity be wet or saturated steam. High tension steam, on the other hand, may be saturated and wet, or superheated and dry, while during the actual process of sterilization, it is practically always in equilibrium or at rest.

The greatest source of error in the conception of the action of steam, is to regard (d) high tension steam as synonymous with (f) superheated steam. Low or high tension steam can be converted into superheated or dry steam, by raising the temperature or increasing the pressure. For the purpose of sterilizing activity, it is the condition of saturation which is of importance

Heat is of course transmitted through solid bodies by conduction only, through fluids or gases by conduction when at rest, or by convection or moving cuirents when in motion air is a poor conductor of heat, and for the purpose of sterilization it cannot be too clearly borne in mind that (a) hot air, (b) superheated or dry steam, and (c) a mixture of hot air and steam, when at rest all act in the same way as mere conductors of heat, and are all equally efficient-or rather equally inefficient-as steriliz-When in motion, diffusion of heat by ing agents convection plays a part, but does not increase their sterilizing activity appreciably The explanation of this comparative inefficiency appears to be due to the fact, that the non-conductivity of the bacterial ectosarc is sufficiently great to resist dry heat for a considerable time, and so to prevent the coagulation of the protein content

We now come to the question of the peculiar efficacy of saturated or wet steam as a sterilizing agent. It takes five times the amount of heat to convert, say 1 lb of water, at a temperature of 212° F into steam at the same temperature, as it does to raise the temperature of 1 lb. of water from zero to boiling point. The heat consumed in the conversion of boiling water into steam has apparently become lost, or in scientific terminology has been rendered latent. It only reappears as heat on the condensation of the steam into the form of water, and this occurs only

when the temperature of the steam falls a little below its temperature at condensation or saturation point. We have in this phenomenon the simultaneous explanation of the efficiency of saturated steam and the inefficiency of hot an, dry steam, or a mixture of an and steam

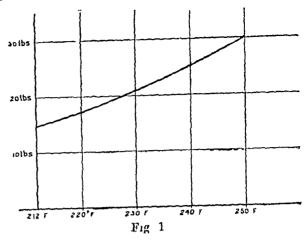
When saturated steam is thus condensed into water a great quantity of heat (as opposed to actual temperature—quality or degree of heat) is liberated, and so to speak, floods the object with Hot air has no which it comes in contact latent heat, it merely parts with its own grudgingly, superheated steam has latent heat, but it cannot part with it until it first changes its physical form and becomes saturated, as superheated steam it is no more active than hot an To take a concrete example. Suppose you have a cylinder full of saturated steam at a temperatime of say 217°F, and while you cut off the access of further steam you continue to apply By doing so you may raise the temperature to say 230°F, but you have positively reduced its sterrlizing activity Next allow it to cool and its sterilizing powers will reappear once more when its temperature reaches 217°F, or just below, re, its condensation point

The conception of the operation of saturated steam in a sterilizer is as follows -The saturated steam on impinging on the colder fabries is condensed into water, liberating its latent heat which rapidly heats up the portion of fabric it came in contact with. A vacuum thus formed is as instantly filled by more saturated steam which inshes in to part in its turn with its latent heat in the same way, and thus the whole contents are comparatively quickly raised to the temperature of the steam The bacterial ectosaic is powerless to resist the heat with which it is thus flooded, and congulation of the contained protein take Even sporing forms with a much thicker ectosaic do not resist for long

I may repeat at this point that it is the latent heat of steam which makes it so active a germicidal agent, and that saturation is a necessary concomitant physical condition for the liberation of this latent heat.\*

It is stated on good authority that saturated steam at a temperature of 212°F kills all oldinary bacteria in 2 to 3 minutes, provided it gets full access, and that even resistant sporing forms are killed in 15 minutes, with the same proviso Of course the higher the temperature of the saturated steam the more rapid and certain is its action. This is effected in practice by raising steam under pressure, the greater the pressure, the higher the temperature. This is represented graphically in the form of a curve Fig. 1. (I am

indebted to Di E. P Hairson, Professor of Physics, Calcutta University, for this chart)



Omitting decimals, the comparative pressures and temperatures are as follows —

Pressure in excess of	$\mathbf{T}$	emperature of
atmospheric pressure		steam
1lb		216°F.
241bs	•••	221°F
5lbs .		228°F
10lbs ••		240°F
15lbs (or two atmospheres)	•	250°F

Before considering the practical details of a steam sterrizer, I would briefly allude to certain physical conditions The higher the pressure at which the apparatus works, the stronger its construction must be and the greater its initial cost It is a mistake therefore to work a sterrhizer at an unnecessarily high pressure, not only because more fuel is required, but also because its correspondingly shortened. working life 18 Besides the advantage of the higher temperatures and their greater germicidal activity produced, m high piessure sterilizers, the higher the pressure, the greater will be the power of the diffusion and penetration of the steam. ‡ simple instance will suffice. A roller bandage can be solled so tight that ordinary current steam will pass round it and not through its interstices, and the process of raising its interior to the temperature of 212°F will occupy a very appreciable time But place the same bandage in a sterilizer working at a pressure of 2 atmospheres or 15 lbs above atmospheric pressure and in a comparatively short time its temperature throughout will reach 250°F

The moral of this is that articles should be loosely placed in a low pressure sterilizer, the bulkier they are and the tighter they are packed, the higher the pressure necessary for sterilization in a given time, or conversely the longer the time necessary for the process. This may seem to be a platitude, and it certainly is to anyone who has considered the question, but

It may seem perhaps to have over emphasized this point, but confusion exists and is even perpetuated in a standard text book on Aseptic Surgery

<sup>†</sup> These are critical pressures, that is, high pressure sterr lizers are constructed in various patterns to work approximately these pressures

mately these pressures

‡ In speaking of steam pressure the atmospheric pressure of 14.7 lbs per square inch is disregarded, and this method is followed in this paper.

ignorance of its truth undoubtedly led to the adoption and use of certain patterns without any conception of their limitations and with correspondingly indifferent results. In the early days of disinfection if steam was applied in any form. its efficacy was taken for granted with a calm disregard of any physical hindrances or the factor I need not enlarge on this point exercise of a little commonsense should mevent any false sense of security in using a sterilizer in practice; but I would point out that if the user has any doubts as to the efficiency of his apparatus he should test it bacteriologically from With this waining we may pass time to time to consider the practical choice of one of the many patterns of sterrlizer now on the market

All steam sterilizers have two separate chambers one in which steam is raised and another in which the fabrics to be sterilized are placed, and to which the steam is conducted. The chambers may be placed one over the other, one inside the other, or may be quite separate connected only by the steam pipe. Usually they are cylindrical in form both for ease of manufacture and on account of the fact that the cubical content is greater than in other shapes. In the more expensive patterns an arrangement is included by which the interior of one chamber can be cut off from the other, this is merely a detail in design

Sterrilizers fall immediately into two categories, low pressure and high pressure sterrizers, the former working at atmospheric pressure, the latter Taking low pressure steriat higher pressure lizers first, there are two original models still advertised which are quite out of date The one is a box with a perforated floor resting on the tray in which the water is boiled. The other is an ordinary vertical cylinder in outward appearance very similar to the high pressure model Ordinary current steam is utilized in both, but in the former the leakage and dissipation of heat is great, and in the latter the friction the steam has to overcome necessitates a great expenditure of time if reliable results are to be ensured Both patterns go by the generic name of "Schimmelbusch's" sterilizei Then comparatively low first cost is an attraction but a fallacious one

Of portable low pressure sterilizers there are three models to choose from (a) Stacke's by Allen & Hanbury, (b) Macdonald's No. 1 by The Medical Supply Association, and (c) the "Holborn" by the Holborn Surgical Instrument Coy The comparative details of price and size are as follows—

		Kettle				Con	ple	te	Extra Kettle			
Stacke's	No.	1	61	by	5	ın	2£	75	6d		178	6d
Fig 2 Stacke's Macdonald's	No.	2	8‡ 6 <u>1</u>	by by	6 <del>3</del>	ın ın	4£ 2£	4s 178	0d 6d	£1	1s Ss	$egin{array}{c} 0d \ 0d \end{array}$
Fig 3 Holborn Fig 4							4£				17s	64

They are all well built and finished and very simple to work. Stackes and the Holborn work with current steam, which passes directly through the dressings before it can escape to the atmosphere. In Macdonald's the steam passes over the dressings and the residual and is aspirated out. In theory this may be open to question, in practice as the capacity is small it works well. The only objection I have to these sterilizers as the depth of the cans a shallow kettle is more convenient in actual use.

High pressure sterilizers — Of portable patterns Macdonald's Nos 2 and 3 answers the description They are exactly similar in appearance to No 1, but have the important modification of a steam pressure valve which opens at from 1 to 2lbs. This is not clearly stated in their despressure criptive sheet, but it places all models other than No 1 sterrlizer in a different category The kettles are 9 by 9 and 10 by 10 m respectively and the price £4 17s 6d and £6 15s complete with one Extra kettles, 17s 6d and £1 1s. res-They make two other models capable pectively of holding 2 kettles at once, the theoretical objection of excessive friction or at all events of excessive cubical capacity may apply, but the makers are assured of their efficiency As I have not tested one in use, I cannot speak with The other feature of this sterilizer is a vacuum-containing lid, which obviates the condensation of steam on the interior and the wetting of the contents

As there is a demand for a handy portable sterrlizer, I have had one made which I think should answer the requirements of the general (Fig 5) It works at 1lb pressure practitioner The valve is enclosed and I believe "fool proof" The steam passes through an ornice (closed by a screw plug at other times) in the bottom of the kettle, the lid of which is set a jai during the process of sterilization The dimensions of the kettle are roughly  $6\frac{1}{2}$  in. in breadth by 4 in deep There is sufficient space above the lid, to sterilize an extra towel or other articles. It is not at the time of writing, available commercially but will, I hope, shortly be so. An extra pressure of 11b. 15 sufficient to ensure the temperature of the steam being maintained well above 212°F or boiling point, and gives a considerable margin of safety with half an hom's free steaming

Of larger models, Messrs Max Weiss make a vertical pattern, working at a pressure of 5lbs, price £19 2s with 2 kettles. A drying apparatus can be added at a cost of £3 extra. Paraffin stove extra. They also make two horizontal models working at 5lbs pressure, price £30 to £40 respectively, kettles and heating apparatus extra. There is a safety valve which blows off, when the proper working pressure is reached

The Edinboro' pattern high pressure sterilizer made by the Medical Supply Association is one

# STEAM STERILIZATION AND HINTS ON THE CHOICE OF A STERILIZER.

By Lieut-Col E A R NEWMAN, MD (Cantab), IMS.,

Civil Surgeon, Alipore

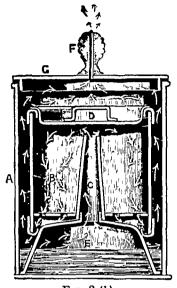


Fig 2 (b)

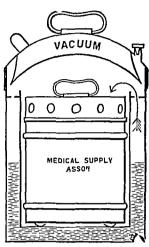


Fig 3 (b)

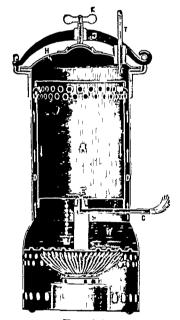


Fig 4 (c)

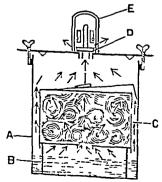


Fig 5 (a) A outer can, B stand for C inner can, D steam lift valve, E cover to valve



Fig 5 (b) Caw

for which I have nothing but piase. It is thoroughly strongly built and can be worked at 10 or 12 lbs pressure though tested much above this. The price inclusive is about £20 with 2 kettles, each  $9 \times 9$  in Messis Arnold also specialize in these high pressure vertical models, the price varies from £20 upwards according to size.

Of bigger horizontal models Messis Down Bios make three different sizes price £60, £100 and £140 respectively, which are so well known that I need not describe them further. Horizontal models are perhaps more convenient in practice, but this is obtained at an enhanced cost and some little greater complication in use, as the chambers are disconnectible. Still larger models capable of disinfecting bedding and clothing in bulk are of course obtainable but cost anything from £200 upwards. The boiler in this case is quite distinct and steam is led by pipes to the body of the disinfector.

General conclusions—High pressure sterilizers present very definite advantages over low
pressure ones, in saving of time and far more certain results. So much is this so, that it may
be laid down as an axiom that a low pressure
sterilizer—with the single exception of very
small portable patterns—should never be purchased nowadays. Even in these small models the
addition of a valve increasing the pressure by 11b
is a great desideration, and such a model should
be chosen by preference. For hospital work
there is a considerable range of models costing
from 100 to 750 rupees

There are two cautions in using them. In low pressure sterrivers never pack or roll the fabrics tightly. In high pressure models which do not "blow off" automatically at certain pressures, it is not only as the makers say, "advisable' to allow the first steam raised to blow off—it is absolutely essential—to get rid of the residual an

At least one spare kettle or diessing container should be ordered with any sterilizer; it more than doubles the use of the apparatus. Shallow kettles or half-depth kettles  $9 \times 4\frac{1}{2}$  in I have learnt by experience, are much more useful in practice than the full depth ones  $9 \times 9$  in. For caps, towels, aprons, etc., I now employ stout drill bags with a flap or fly to protect the mouth which is closed by a purse-string tape. They are far less costly, they can be made locally and afford perfectly efficient protection in use

Heating apparatus.—As an efficient source of heat hes at the root of all successful sterrhization, I add a few remarks on the subject. The problem of efficient heating has been solved by the invention of incandescent kerosene stores of the 'Primus' type. They are made in a long range of models with 2, 3, 4, 6, 8 or more jets or burners under the mames. 'Powerful

or 'Intensive" Curiously enough the multiple burner patterns give far less trouble in actual use than the single burner stove, probably because the trough for the priming charge of spirit is so much larger Generally speaking, I should say the 4-jet pattern is the most useful, though a 2-jet stove will suffice for a smaller sterilizer. I have found that two 4-jet stoves heat Down's No. 1 sterilizer rapidly and satisfactorily, far better indeed than the original apparatus supplied by them on the same principle They are strongly made and susceptible of simple replacements in the way of jets or washers when necessary. Every sterilizing room should be fitted with two to six stoves according to requirements The only precaution necessary to keep them in good working order, is to allow the priming charge of spirit to heat up the jets thoroughly before the oil is pumped up. If this is attended to, the kerosene is always properly vaporized. If liquid kerosene escapes from the jet it buins with a smoky duty flame and the soot quickly chokes the jet Jets should not be cleaned unnecessarrly it enlarges the hole and spoils the clear blue Messis Moeller and Condrop, Store St, London, are the wholesale agents for these stoves for the British Colonies, and would supply a price list on application.

RETRACTILE POINTED STOP-COCK CANULA FOR GIVING INTRAVENOUS AND INTRAPERITONEAL SALINE IN-JECTIONS WITHOUT INCISION

By LEONARD ROGERS, CI.E, FRC.P, 1 R.C.S, M.D, I.M 8

Professor of Pathology, Calcutta

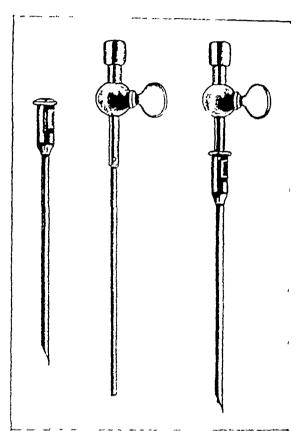
INTRAVENOUS injections of hypertonic salines are now so extensively used in the treatment of cholera and other severe forms of diarrhea, that any improvement in the technique of the method is of interest Although the little operation of cutting down and tying a canula into a tein is a simple procedure in a hospital, yet in private houses of Indian patients it is sometimes objected to, while in unfavourable conditions yillages and coolie huts the much less satisfactory subcutaneous or rectal injections are often preferred by medical men in order to avoid having to make an incision with the recessary alter-treatment Although it is usually a simple matter with a little experience to puncture a vern with a needle passed through the skin without previous meision yet the time required to run several pints of saline into a restless cholera patient prohibits the use of sharp-pointed transfusion needles for this purpose At my request Messis Down Bios, have made for me a special canula the outer pointed sheath of which can be retracted efter the tem has been punctured through the skin, leaving an inner blunt-ended .

canula within the vessel thus allowing large amounts of saline being safely transfused As shown in the accompaying illustration, the outer sheath is pointed and can be retracted over the inner continuous canula and also altogether removed for cleaning purposes. A stilette is also The calibre on the inner tube is such provided that four ounces per minute can be run through it from an elevation of three feet, which is all that is required The stopcock of my former blunt-pointed canula for tying into a vein has been retained but the whole instrument has been made straight, so that it can be used equally well for intravenous, intraperitoneal and subcutaneous injections, either the second or third method being fallen back on if the operator fails to punctue a vein with it and does not care to expose the vessel and tie it in

In using the instrument it is first connected up with a sterile flask containing the saline by means of a piece of jubber tubing near the canula end of which a short piece of glass is inserted, and all an expelled. If one of the elbow vessels has been selected, a piece of bandage is tied sufficiently tightly found the upper arm to distend the veins without obstructing the arternal flow After sterilising the skin with iodine, or other antiseptic the canula is thrust obliquely through the skin, which is drawn fairly tightly over the vein to fix it three succesive cases I found no difficulty in thus entering the vein when the canula passes easily along it. If any doubt ien aims the flask of saline is lowered to the level of the sim and the stopcock turned on, when blood will be seen to enter the glass tubing ()1 once more raising the flask, the flow will be established and the point of the canula is now retracted to prevent it damaging the vessel with any slight movement of the patient If the elbow veins cannot be sufficiently distended the internal saphenous vein over the ankle can sometimes be Possibly a minute incision one-fourth of used an inch in length through the epidermis may facilitate the puncture, although I have not found it necessary In extreme collapse it may be impossible to puncture the vein through the skin, in which case a very small incision will expose it sufficiently for the purpose, but in that case it will probably be better to the canula in to prevent any sudden me ement displacing it while a ligature below the seat of the puncture will prevent any bleeding from the vessel bandage must of course, be removed as soon as the transfusions is commenced a small point which is easily overlooked for a time completion of the injection the canula is withdrawn and collodion on cotton wool and a handage applied

Intra-Pentoneal Injections -Several years ago I devised a canula with the end like that of a

cork borer for puncturing the peritoneum close below the navel after increng the skin and fasche, and I recorded the successful treatment of cholera cases especially in children with minute veins by hypertonic saline iun into the abdominal I only advised the use of this method under conditions which prevented the intravenous method being readily carried out, and Di Bishop has recorded excellent results from this plan in villages in the neighbourhood of the Ganges Budge works, and has found that a trocar and canula can be safely used for the purpose. I hope that the present retractile



pointed canula will considerably extend the undei which the intravenous conditions transfusions can be used but failing that method intra-peritoneal injections can also be given by its means without the necessity of making any incision except perhaps just through the epidermis while it is equally available for subcutaneous injection in milder cases without actual collapse or very great concentration of the blood as shown by a high specific gravity

The new canula could also be used for giving intravenous injections of salvairan, or of soluble salts of quinine in the high dilutions (1 in 500 normal saline) in severe malarial infections with one parasite to every 20 to 25 red corpuscles in which milder methods often prove meffectual have found it convenient to keep the canula in a bottle of lysol so as to be always ready for use at a moment's notice

# Indian Medical Gazette.

NOVEMBER

## MEDICAL EDUCATION IN LONDON

THE recent report on University Education in London issued by Lord Haldane and the Commissioners is bound to attract the attention of all interested in Medical Education in England and elsewhere

We have already commented on the value of M1 A Flexner's report on Medical Education. All who have read M1 Flexner's report are well aware of his very severe strictures on American medical schools and colleges and of his not undisguised admiration for the German hospitals and university medical methods

The report on Medical Education has been very largely influenced by Mr Flexner's report, but it is quite another matter to say that what is good for Germany is good for Medical Education in London. The systems are entirely different.

The report has not been widely circulated but The Times has given prominence to it, and Prof Harvey Cushing in his address on Surgery at the recent International Medical Congress alluded to the subject Sir Henry Morris, however, has published in The Times (August 14, 15 and 16), a series of three articles on medical education especially with reference to the revolutionary changes recommended by the Commissioners which deserve attention for all medical men.

We think the criticism is most opportune. The Commissioners apparently propose to absorb the existing medical schools of London into two or almost three constituent colleges of the University of London.

The ideal proposed by the Commissioner is an atmosphere of research and this is to be imbued into all students, the majority of whom are not by nature fitted for such work and who enter the medical profession as a means of livelihood and to practice not as 'professors' but as physicians and surgeons

Previous Commissions had avoided the question of chinical teaching but the recent Commission suggests far reaching changes, which strike at once at the independence of the London schools. The Commission recommends paid whole-time professors of medicine, surgery and midwifery, in tact the chinical teachers are to be as much whole-

time men as the professors of chemistry or of physiology. We may quote Sir H Morris —

"Then contention is that the clinical teachers in a university medical school must be university professors in the same sense as the teachers of chemistry and physiology. It cannot be denied, nor is a denial attempted, that the English physicians and surgeons make use of the assistance which science experts give them in the diagnosis and treatment of disease. It cannot be denied that the English system of clerks and dressers is a most valuable training and ought to be continued. It cannot be denied that the student in every department of medicine and surgery ought to have free access to patients in the wards and out-patient rooms, and learn by personal experience the whole technique of his art. These are the great features so specially characteristic of British clinical teaching.

But, says the report, 'the clinical demonstration' of the German system 'is also a valuable and necessary form of teaching, and demonstrative teaching requires more time for preparation than the present teachers can give ' It is also contended that co-operation between the physician or surgeon and the pathologist, bacteriolo gist, chemist, and other expert scientists is as necessary for the advancement of medicine and for teaching students as for the diagnosis and treatment of disease Still following Mr Flexner, the report asserts that such co operation does not exist in the medical schools so long as physicians and surgeons are engaged in private practice and do not give their time to attacking the problems of disease, and become the directing and controlling members of a group of men working for a common end This is an entire mistake, as it is the rule with clinical teachers in this country to obtain all the help and light they can from scientists, but without presuming to play the iole of director or controller of their laboratories"

We commend these letters to the notice of all interested in medical education and must conclude with the final paragraph of Sn Henry Morris' three articles:

"I must not encroach further upon the space which The Times has so liberally put at my disposal, and I must not attempt therefore the discussion of the serious and numerous objections to the omission of a Medical Faculty in the university at its reorganization; and to the examination of university students for degrees (which carry a license to practise) being conducted by their teachers even though with the assistance of two assessors

A Faculty of Medicine might admirably be formed at once out of the teachers at each of the medical schools and by representatives of two such important bodies as the two Royal Colleges. Every member of the Faculty so composed would be in immediate relation with teaching. The proposed board of examiners is nearly as bad as it is possible to make it; its chief members might possibly all be 'one corner' men. Nothing can be worse than the present system of examination of the University of London, whilst there exists at the Conjoint Board a system which has been slowly and gradually

developed, and which is the admiration of every one who is familiar with it. Why should it not be copied or utilized? Why should an attempt be made to thrust on the University of London such a series of recommendations as those concerning its l'aculty of Medicine—a set of ornamental cast-iron professors in a miniature faculty, figuratively feeding a few students in a sort of doll's house 'Constituent College' with fertilizing ideas, forming a section of an ideally perfect University with German foundations and a Maryland crest, and flying the Banner of the Great Ideal? Why should it?"

# Qurrent Topics.

#### THE PREPARATION CALLED JINTAN

In justice to the proprietors of a preparation called Jintan—put on the market by the Marishita Co of Japan, we direct special attention to the letter in our correspondence columns in which Mi S V Savant completely withdraws his erroneous statement that this preparation contained morphine. We have seen a letter from the Chemical Analyser, Bombay, in which that officer states that the pills called Jinian "are free from Opium, Morphine and Cocorne

Savant was therefore misinformed and his previous statement is withdrawn, and we think it only right to let the public know that this preparation is free from such objectionable additions

#### RELAPSES IN MALARIA

Dr. W. M James, of the Ancon Hospital, in the Canal Zone, published in the Journal of Infectious Diseases (May 1913, p 277), a very valuable article on the Ætiology of Relapse in malarial infections, an aspect of malaria which has not hitherto received the attention that it He first discusses two previous hypotheses on this subject and then gives one of lus on n

"The hypotheses as to the cause of relapse fall under two heads

1 Some particular, or peculiar, form of the parasite is developed during the asexual cycle, and this form is resistant to quinine and to the protective forces of the It remains latent until called into activity by certain forces whose action is not as jet clearly under stood, when it breaks up into merozoite like parasites,

which take up anew the asexual cycle

This is the hypothesis which explains relapses either as due to parthenogenesis of the female gamete, or macrogamete, as advanced by Cannalis, Grassi, Maurer, Neeb, and others, and worked out in its greatest detail by Schaudinu, or as due to segmentation of a parasite formed by conjugation of two young asexual forms, which is the view taken by Craig Mannaberg believes that crescents are formed by the union of two or more of these young forms, but I can find no statement of his which would indicate that he upholds the parthe nogenetic hypothesis, while Lwing, who also observed conjugation, state 'The large size of the sporulating forms developed from conjugating pairs suggests that this process is intended to especially favor the

multiplication of the species in the human host Ewing's observations were made, as were those of Schaudinn, on the tertian parasite, while those of Craig were made on all three species

After a diminution in their vitality, due either to quinine or to the natural protective forces of the body, the asexual parasites continue to go through then normal life cycle, but in very small numbers (iclatively speaking), until the causes that bring about relapse effect a renewal of vitality, so that the parasites increase in number until the clinical symptoms of relapse are manifested

This hypothesis has the support of Ross and Thomson, and slightly modified, of Bignami also. The last believes that the parasites in their asexual cycle may become immune, either to the natural protective forces of the body, or to the action of quinine

These hypotheses have two factors in common renewal of the asexual cycle to a degree when climical symptoms are manifested, and a resistance of the latent parasites, whatever may be their form, to quinine"

"In presenting the foregoing account of the various hypotheses as to the etiology of relapse, although I have stated my own opinions of their validity, I have tried to give impartially the findings of various workers. It is now my purpose to examine these hypotheses particularly with reference to their biological significance, in order to ascertain what relation they bear to observed facts in the life history of the Plasmodia

These facts I have stated previously. They are,

briefly -

Relapse is a common feature of malarial infections Relapses follow most often, in the order named untreated primary infections, insufficiently treated in fections, and infections treated late in their course Although rarely, they follow the most vigorously treated primary infections. And it is easier to effect a fuic in uncomplicated than in complicated infectious.

From these data it is evident that the cause of iclapse is intimately connected with two factors in the life cycle of the Plasmodia (a) a stage when quinine as usually given does not eradicate the infection, and (b) this stage is in intimate relation to the time the infection has persisted. Any hypothesis that does not accord with these factors cannot be accepted unless it be admitted that the factors are false. Also, a hypothesis should agree with the clinical observations in relapse which so many careful workers have verified

If it be admitted that parthenogenesis actually happens, it by no means follows that this is the cause

of relapse."

We can only here quote Dr James' summary of his own views .-

"If the hypothesis be accepted that the asexual cycle alone is the cause of relapse, and under certain conditions takes on a relative immunity against quinine, an explanation is offered of all the factors concerned in the etiology of iclapse, and I know of no other hypothesis which will explain satisfactorily the correlation between these factors and the data which to this time have been collected about relapse I may summarize these factors, which were given early in this paper, in relation to the asexual cycle as follows

- Relapse is one of the most common factors in malanal infection, and certainly the asexual cycle is that phase of the malarial parasites found most frequent ly associated with the primary infection and relapse, and with one relapse and the succeeding one.
- Relapse follows frequently the so called spontane ous cure of malaria, because the asexnal cycle in such an instance often persists, in numbers that can be detected by the "thick film" method, or slightly below this limit, in the intervals of apprexia
- 3 Infections treated insufficiently with small doses of quinine will in all probability relapse, because the

parasites of the asexual cycle in the spleen and mailon are very slightly, if at all, affected thereby.

- 4 Relapse is less likely to occur when the infection is promptly and vigorously treated, because the older the asexual cycle, the more resistant to quinine it becomes, as shown by numerous clinical observations
- 5 When a relapse occurs, with manifestation of parasites in the peripheral blood, during the administration of quinine by mouth in sufficient doses, faulty absorption of the drug is suie to exist, and the method of medication should be changed
- 6 The asexual generation does not have an unlimited potential of vitality. That is why, if death does not supervene in the course of a malarial infection, the infection itself will in time die out, but often not until it has done irreparable damage.
- 7. It is easier to eradicate an infection in persons in good health, because in these the natural protective forces of the body aid the action of quinine

The hypothesis also concurs with the two factors in the lifecycle of the parasites, which are intimately connected with the etiology of relapse because (a) quinine given by the mouth very often does not eradicate the asexual cycle in the marrow and spleen, and the residual parasites become immune, and (b) the longer the asexual cycle persists, the easier it acquires immunity against the drug

The practical importance of the hypothesis lies in the value it has as a guide to treatment of malaria. Small doses of quinine, even in the mildest infections, serve only to render the asexual cycle relatively immune, so that larger doses, which if they had been given early in the attack might have eradicated the parasites, are later without effect

We have found this to be true by our chinical experi once here in the Aucon Hospital In the treatment of malaria in our American employés, it was observed by Dr. Deeks that when the liquid piepaiation of quinne sulphate which we use was given in doses of 20 grains per day by mouth, while acute attacks were often controlled, recurrent cases in large numbers followed at very short intervals later, and in the treatment of these larger doses were necessary. A routine treatment of 20 grains on diagnosis, and 10 grains three times a day later, for at least 10 days, was then established, and this we used for several years. This noticeably diminished the number of recurrent cases (we can determine relapses positively in individual cases, only under a few conditions, such as recurrence while in hospital) among the Americans, but not sufficiently among the more poorly nourished European laborers Dr Deeks then instituted a treatment of 45 grains per day, in doses of 15 grains each. This method has practically eradicated recurrent malarin among the Americans, and to a large extent among the European laborers latter, however, treat mild infections themselves with small doses of quinine, and so produce a relatively quinine immune asexual cycle that is more difficult to eradicate They are, moreover, heavily infected with sp philis, a condition which, as noted, tends to lessen the efficacy of the usual treatment until the syphilis itself is under control

It should be stated that in the past six years our malaria rate his fallen to about one fifth of the maximum, so that reinfections are proportionately less infrequent, but the rate was never relatively very high among the Americans except in 1905 and 1906, so that later in this class, recurrences at short intervals, which were plei tiful enough, were nearly always due to relapse."

# SURGERY AT THE MIRAJ HOSPITAL

Our columns have frequently certified to the good surgical work done by Dr Wanless and his colleagues at the Presbyterian Hospital, Miial,

W. I, and we quote the following extracts from Di Wanless's report :-

In all 1,427 patients were treated surgically in the hospital of whom 455 were eye patients, a total of 2,733 There were 43 deaths operations were performed among the surgical patients Excluding abdominal cases the mortality was 1 25 per cent. The majority of the fatal cases were patients suffering from advanced malignant disease, tuberculosis, intestinal obstruction and acute sepsis. We have frequently referred to some of the discouraging features of surgery in India, me, the application for admission of procrastinating patients who turn up well nigh morrhund in advanced stages of malignant disease, tuberculosis, etc., with vitality wasted and resistance lowered by prolonged suffering and poverty, making them the poorest of surgical risks. In any Indian hospital pationized mainly by the poor and ignorant village people and where a considerable amount of abdominal surgery is done, the mortality, for years to come, is likely to be unavoidably large The relatively higher mortality among ignorant Hundu and Mohamedan prtients as compared with the educa ted classes was well illustrated in the past year by the negative mortality among educated and intelligent Parsee and European patients In all 117 Parsees and Europeans were operated upon, 62 of this number were subjected to abdominal operations, most of them were major procedures and all without mortality, while none caused serious concern in their post-opera tive treatment

Surgical tuberculosis has figured exceptionally in the past year operating and late cases have enhanced our mortality

The principal feature of the year's surgery is the increase in the number of abdominal and gynecological operations as compared with other departments of surgery

Appendicitis—There were 14 cases of acute, 5 of chronic appendicitis, and 2 of tubercular appendicitis, appendectomy, all recovered. The appendix was removed in 24 other cases associated with pericolic bands (Jackson's membrane) and Lane's bands or kinks. We reserve comment for the present though one may say here that we find these bands much more commonly now than formerly, a common experience of abdominal surgeons now-a days. In chronic cases we employ the Kammer incision exposing the whole cream and colon. In several cases where duodenal ulcer was suspected we found bands obstructing the outlet of the stomach. The appendix was removed in several instances through the same incision (high right rectus) when suspected of being associated in the causation of the symptoms. We lost three of the patients in this group, one from pneumonia an old patient, one from renal insufficiency on the 3rd day, and the other on the 10th day from failure of the abdominal wound to unite, resulting in fatal peritonitis, there was no suppuration in the

There were 4 cases of acute intestinal obstruction All were in a critical condition when admitted and complete obstruction had existed for 4, 5, 9, and "several" days respectively. The bowel was gangrenous in two, in a third there was an incomplete perforation which ruptured on delivering the bowel

Gall stones—Cholecystomy was performed in 2 cases, European female, cholecystomy in 2 cases of cystic gall bladder, all recovered Gall stones among Indian patients, in our experience, are comparatively rare

One case of liver abscess was operated by Manson's method and recovered Liver abscess is a comparatively rare condition in the mofussil around Miral

Two cases of hydated cyst of the liver were operated by partial excision and packing of the remaining portion of cyst subsequently bismuth injections were employed to promote shrinkage. One was discharged "cured" and one "improved."

A case of cost of the panceas was operated, the provisional diagnosis being hydatid, the tumor filled the whole upper abdomen, the stomach was found stretched across the lower aspect of the tumor, resembling bowel. Pluctuation was made out in what was believed to be a retro peritoneal cyst, but later found to be connected with the panceas. It was exposed through the lesser peritoneal cavity and 4 pints of oily fluid drained off through the trocal. The sac was now freely opened, the hand introduced and a large amount of fleshy granulation like debræ removed and a lot of calcified fibrous material stripped off the interior of the sac. The lower portion of the sac was found to be calcified and adherent posteriorly so that the complete separation was found impracticable. The redundant position of the sac was cut off and the remaining sac stitched to the peritoneum and packed with gauze. The patient reacted promptly and did well for a day or two when he became toxic and died on the 4th day.

Abscesses and Sinuses -71 operations, most of the abscess operated in the hospital were deep or otherwise complicated usually requiring a general anesthetic

No mortality

Eye and appendages - There were 1,571 ophthulmic operations performed, 36 less than 1911 We give below a classified table of cases treated Space will permit only of a few notes in this report For catalact Smith's operation is done in about 90 per cent of all senile cataracts, our satisfaction increases with added experi ence in the performance of this operation The principal drawback in Smith's operation, and in our judgment the most serious of the accidents which are likely to occur is the buisting of the capsule during delivery of This accident is most unfortunate if it occurs when the lens is partly delivered and is followed by failure to get out the remaining capsule, the capsule being already displaced it offers less protection to the vitreous, is more likely to cause nitis and invite infection than is the case in a deliberately planned capsulotomy To remove remaining cortex in these cases we use gentle intia capsular syringing, and this certainly improves the situation in most cases. In extraction of intumescent lenses in patients who are "squeezers" we usually do the capsulomy operation with intra capsular irrigation, though in quiet patients with good exposure we attempt the Snoth operation and frequently succeed in getting out the lens without inpture of its capsule.

In simple Glaucoma, we have employed cyclodialysis in a number of cases and have not been encouraged by the results. Indectomy, anterior and posterior selectory have been chiefly practised. We have tried the Lagrange, Herbert and Elliott operations successively but for experience is still too small to speak with confi

dence of them relative value

For dacryocystitis, mucocele and lachiymal stricture we have practised extirpation of the sac in most cases. This was done in 28 cases in 1911 with gratifying results

Cyanide injections in pannus, recent corneal opacities and the later stages of trachoma we have found of considerable value. We usually employ the cyanide with dionin, 15 grs. to the ounce of dionin in 1 in 1000 cyanide, equal parts. I. C. C. for an injection.

Genito-Uniary—There were 207 operations with 5 deaths. The operations include 10 operations on the lidney as follows nephroetony for calculus nephritis pyonephrosis, etc., 51, nephrolithotomy 1, nepropexy

for moveable kidney 4, all recovered

There were 67 operations for resicul calculus with two deaths, both occurring in litholapaxy operations. In one the bladder was ruptured requiring laporotomy and suture. The operation was greatly prolonged and death resulted from shock. In the 2nd case the operation was completed without positive evidence of injury to the bladder though this was suspected. On the following day retention supervened with evidence of subperitoneal extravisation. Suprapulic drainage was instituted, death resulted from peritonits. We now, in cases in which we suspect injury to the bladder wall, especially

in old patients, the a catheter into the bladder to be removed on the following day if progress is satisfactory. This precaution helps one to promptly discover leakage, if present after operation, besides relieving tension on the bladder. The viscus having sustained a partial rupture of its wall the rupture may liter become complete by straining of the patient. Had this precaution been taken in the case mentioned we believe the patient would have had better chance. The operations for stone were as follows: hitholapaxy 46, perineal litholapaxy 13, lateral lithotomy 41, median lithotomy 3, suprapubic: I Most of the calculations mixed, oxalate or unic and a small percentage were phosphatic

#### RELAPSING FEVER IN TONQUIN

The Annales d'Hygiene et de Médeeme Coloniales (No 2, 1913), has many articles of value and interest to readers in the tropics perhaps the article of most interest is one by M le Di P. Mouzels on relapsing or spirillar fever in Tonquin

It was first recognised in that country by Dr. Seguin and Dr. Mouzels in 1907 but it must have existed long before in Indo-China and cases strongly resembling this widely distributed fever were noticed in 1889 among the inhabitants of

Annam

It is now described by Di Mouzels as a veritable plague (fleau) in the country. Dr Mouzels gives a good clinical account of the disease, nundice he notes as a regular symptom, the death-rate is high from 27 to 41 per cent of cases in various recent years. His temperature charts are of great interest, some showing no relapse and others one, two or even three relapses (rechute). The diagnosis is based on the following points—

(1) Characteristic onset, (2) intensity of cutaneous and muscular pains on palpation, (3) the intelligence of the patient is unchanged, (4)

the jaundice

The prognosis is bad Epidemics are most common in the month of February to June Prophylaxis depends on the extermination of vermin

### THE CANAL ZONE SIX DAY FEVER

DR W E DEEKS, of the Canal Zone, had an interesting article in the Journal A M A (October 26th, 1912), on a "hitherto recognised

Six-day Fever" in the Canal Zone

The outbreak occurred among clerks employed in the Ancon Post Office and in a brokelor "chummery" across the same street, in April and May 1912 Of course malaria was suspected, but no parasites were found and no anopheles mosquitoes

Dr Deeks summarises its chief features as

follows -

1 "The disease is highly infectious and the infectious period probably precedes the onset of the fever, inasmuch as no cases have occurred in the hospital by contact from the patients admitted, and no precautions have been taken to avoid contact, although some of the patients were admitted on the day after the onset of the disease

There are no constant or characteristic prodro-9. mata

There is always an abrupt onset, with chills or chilly sensations, and an initial temperature after the chill of from 101° to 104° F

The cases have all run a course of about six days of fever, more or less continued, with but slight morning remissions and a more or less abrupt fall of the temperatures in individual cases ran highest the day, or second day, before the sudden defervescence The temperatures on the second, thud and fourth days were frequently lower than on the first and fifth days

After the temperature falls it generally remains normal, but in two severe cases a slight secondary fever of from one to two degrees occurred lasting three days

The pulse and respiratory rates remained practically normal. The only pulse-rates recorded over 100 were on admission or after some special disturbance. The range generally was between 68 and 90

The spleen was always enlarged, and its free margin in many cases could be palpated from 2 to 3 inches below the free costal margin. The enlarge-3 inches below the free costal margin ment was as striking as in tertian or quartan malaira. On the other hand, very little enlargement could be

made out in the liver
7 The blood-picture remains practically unchanged The leucocyte counts and differentials were recorded as in the accompanying table

The patient with the eosinophils was suffering also

from a slight colitis with ciliated monade

8 There is always some nephritic initation as manifested in a slight trace of albumin and a few granular and hyaline casts

Two of the patients, however, developed a very severe albuminuia with numerous brown granulai and hyaline casts. The albumin disappeared within a week after the fever subsided, and after two weeks only a few hyaline casts remained in the urine of the severest case

There is always anorexia during the febrile course and a considerable after depression. The patients do not react or recover their appetites so quickly as during convalescence from malaria

10 The period of incubation is apparently about ten days.

The other constitutional symptoms were those of any febrile disease, but muscular pains were absent and only "vague aches" complained of The following is the blood count as given by Dr S T. Darling and H C. Clark No organism has been grown

Leucocyte and differential counts

Leuco cytes	Polynu- clears.	Small.	Large	Transı tıonal	Eosino phils
9,800 4,000 4,800 7,400 5,400 5,400 5,200 4,800 6,200	45 69 64 87 83 69 69 69 88 69 63 85 70	37 41 25 29 10 12 23 11 12 25 25 4 5	15 48 4 2 2 2 2 3 4 4 4 0 6 4 9	178171 1 278	.5

"It is probably identical with the seven day fever referred to by Castellani in his Manual of Tropical

It has been described by Rogers and Crombie as occurring in the seaport towns of India and Ceylon

during the summer months, May to September origin here and the ten-day incubation period following the development of the third case indicate that it was probably imported by the mails from some infected port Leonard Rogers describes cases with a duration of

seven and more days of fever and says that bloodcultures in six of his cases were positive for a bacillus related to the B coll group "

Deeks ourrously makes no mention of Dengue, though this is the somewhat protean disease with which the seven-day fever of Rogers is now-a-days most frequently identified.

## INTESTINAL PARASITES IN SENEGAL

DR BOURRETT (Annales d'Hygiene, &c., No 2, 1913), has a useful article on intestinal parasites in dysentery and in sleeping sickness

Intestinal parasites are widespread among the within primitive conservancy natives owing habits and by the consequent pollution of local He has found the following water supplies parasite in dysentery cases in association with the amœba known as Loschia tetragena in the dysenteric mucus — Lamblia intestina in five cases three in Europeans and twice in natives, flagella, of an undeterm.ned type, thrice; tichocephalus trichiuius associated with lamblia intestinalis, necator americanus once; and twice the Blastocystis of Alexheff (Inchomonas)

#### LEPROSY IN S AFRICA

WE extract the following interesting note from The Medical Press and Circular (Augt 20)

"The South African Medical Record for May 24th and June 14th, 1913, is devoted to the subject of 'Leprosy in South Africa' The first issue contains a paper of great interest by Dr. Robert Morrow on the history of the disease in South Africa up to the establishment of the first leper asylum, Hemel en Aarde He discusses the subject in two periods—one prior to the airival of the white man, and one subsequent thereto The first mention of leprosy in South Africa is in the year 1756, but there are abundant signs that the disease itself has existed there from time immemorial, and that it cannot be regarded as a relatively recent importation. The author considers the commercial relations of South Africa in the past, and concludes that leprosy has existed along the east coast for centuries, that Mashonaland was a leprous country in the time of the gold-hunters, and that the disease was not less prevalent in the Great Zimbabwe than it is in any modern Asiatic city of equally large population

Dr Morrow shows that a study of the various Bantu tribes, together with facts bearing on leprosy in these tribes, indicates that the disease could not be visible to Europeans entering the Bantu territories for the first time, and that it existed in most of these tribes prior to the European entrance, also, in almost all tribes a recrudescence of leprosy followed in the track of the new civilisation, owing to the life of the leper being protected by the introduction of Christian teaching and European laws In 1817, the leper asylum at Hemel en Aarde was established, and some temporary lazarettos erected in which lepers could be confined until they could be forwarded to the asylum

The next paper in the journal deals with the administrative side of the leprosy question. The author, Dr. C. F. K. Murray, Official Visitor, Robben Island, discusses the subject at length, and suggests considerable. modification in the present system of segren

advocates the establishment of leper settlements to admit of family life, the establishment of one or more central hospitals to which all the worst cases should be sent for treatment, and the modification of all existing establishments on this basis. With legard to Robben Island he advises the adoption of one of three courses to remove the lepers to the mainland, or to remove the lunatics and convicts, leaving the island as a leper settlement, or to abandon the island as an official establishment altogether. A lengthy report by Di Bayon, research bacteriologist in leprosy, is appended It deals with the advisability of segregation, with the prevention and cure of the disease, and with the suitability of Robben Island as a place of detention. The journal of June 14th is devoted to a paper of great value by Di Bayon on the recent experimental leprosy research. The author deals very fully with the attempts to cultivate the micro organism of leprosy, he concludes that Kedrowsky's culture is one of true leprosy, capable of producing leprous lesions in animals, and reacting in a specific fashion with leper's serum. He states that the most suitable animals for inoculation are the rabbit, the 1st and the mouse, and that the resulting lesions are similar to those caused by certain strains of human tubercle According to Stanziale's and Seria's experiments the Wassermann reaction is positive in rabbits which have been successfully inoculated regard to the contagiousness of leprosy, the author believes that it is relatively easily communicable from the diseased to the healthy under unhygienic conditions by intimate personal contact When, however, hygiene is good and contact not intimate one case in a thousand or even less may get infected Di Bayon's paper is illustrated by many very beautiful coloured microphotographs of the bacilli of leprovy both in culture and in the tissues,'

CAPTAIN W. S PATTON and Captain Ciagg, IMS, have in the press a book of about 600 pages on medical entomology It will be a most useful volume and thoroughly up to date largely original and there are many excellent illustrations, some of them done by Mrs Patton The book will be obtainable from the C L Society, Madias

MAJOR WADHAMS and Captain E C Hill of the U S Medical Corps report (J A M A, Aug 9th, 1913), three cases of amobic dysentery successfully treated by Salvarsan—(which by-the-bye they state has disappointed them in syphilis)—one case had a positive Wassermann reaction and in the other two it was negative, all had had chronic dysentery in the Philippines These cases happened before the days of emetin

YET another journal devoted to tropical medi-The Americal Society of Tropical Medicine announce an official organ, to be published at New Orleans in connection with the Tulane University Tropical School Dr. Creighton Wellman, is the Editor.

It is a pity some of these new journals cannot combine, there are far too many and medical men cannot subscribe to all.

THE following characteristic remark is taken from an American contemporary

"Whitlwind Campaign for Hospital -A twelve-day whillwind Campaign for the purpose of raising \$90,000 is being conducted in behalf of St Joseph's Hospital at Far Rockaway, New York The funds are to be used in the construction of a new building for the hospital"

WITH the August Issue, 1913, the excellent monthly known as the Trasmaa! Medical Journal is to be called The Medical Journal of South A frica

CAPT C H REINHOLD, INS, in Guy's Hovpital Gazette (Aug 16th), gives a very interes' ing account of Lt-Col Elhot's Eye Clime in Madras-on this (Augt 30th), the Editor remarks .-

"The article on Colonel Elliot's Eye Clinic in Madias, which we published last week, serves to emphasize a change which is gradually appearing in the localization of medical progress and teaching. Fifteen or twenty years ago it was sufficient for an Englishman desirous of seeing the best work outside his own country, to visit the Universities of Germany, France, and Austin with the comfortable feeling that that being done he could say, 'I have seen the best' In recent years, however, a change has appeared - for the surgeon it is no longer sufficient to cross the Channel to Berlin and Prague in pursuit of knowledge, his face must be turned to the west as well as to the east, and Rochester and Chicago must be visited before he can feel that he has seen all that is best in modern surgery And now Captain Reinhold would have the ophthalmologists push further cast than Vienna even, and come to Madias if they would see all that is good in ophthalmic surgery Who knows but in another twenty years we shall go to Pekin to study Who knows but orthopædics and to Buenos Ayres for laryngology ?"

We might also add Amiitsai for cataract and many hospitals in the United Provinces and Punjab, &c, for stone

# Reviews.

"A Treatise on Materia Medica and Therapeutic"—By RAKHAL DAS GHOSH, L.M.S., Oal Fifth Edition Edited by cutta University Lt-Col. B H DLARE, INS, Professor of Clinical Medicine and Materia Medica, Medical College, Bengal Published by Messis Hilton and Co, Puce Rs 5 Calcutta

A FILTH Edition of this well known Treatise having been called for so soon-speaks volumes for the value and practical usefulness of the work to not only students of Materia Medica, but also to General Practitioners It is a book which should be in the Library of all medical men engaged in active work, for it is full of useful references—and the student will find everything within its covers to enable him to satisfy the demands of the most exacting Examiner The revision of the present Edition has been carefully carried out, and new articles on more recent Therapeutical work have been added

Medical Teaching in Trinity College, Dublin, By Percy Kirkpatrick, M.D., Dublin, Hanna and Neale, 1912

OLD Trinity men will welcome this book by Di. Percy Kirkpatrick It gives a interesting record of the history of the School of Physic in Iteland and of the lives of the distinguished men who have been responsible for its management

The relations of the School of Physic with the University of Dublin (Trimity College) and with the Royal College of Physicians of Ireland are well and clearly detailed The Medical School of T C D was founded on 14th June, 1710, and many of our readers will remember the celebration of its bicentenary in 1910

There is much of interest about Sir Patrick Dun, who was Physician to King William at the battle of the Boyne He left large properties which were the subject of litigation for many years after, but which resulted in the foundation of Sir Patrick Dun's Hospital, Dublin, and the establishment of the King's Professor-

ships in the School of Physic

Incidentally much of interest is given of the famous professors and teachers who have made the School of Physic in Ireland famous, eg, Graves, Wm Stokes, Cheyne, Macaitney, Macaistei (now at Cambridge), D J Cunningham, R W Smith, E H Bennett, Whitley Stokes, Samuel Haughton, Aquilla Smith, J. M. Puiser, J. M. Finny, J. T. Banks, Churchill, Montgomery and Krikpatrick (all these three Professors of Midwifery), as also Macan Jellett, Apjohn and Emerson-Reynolds great in chemistry, Collis, Butcher, famous surgeous, and many others known to all Dublin students. Old T C D men will read the last chapter on modern development with great interest, as it shows how well the school has adapted itself to modern needs We can condually recommend 1)1. Knikpatrick's book to all "old Trinity men" in India.

Manual of Venereal Diseases —By Sir Alfred Keogh and R. A. M. C. Officers, new Revised Edition by Major L. W. Harrison, RAMC, Oxford Medical Publications, 1913 Henry Frowde and Hodder and Stoughton

The first edition of this book was very favourably received, but the recent advances in our knowledge of the treatment and pathology of syphilis and of the vaccine treatment of gonococcal infections has necessitated the revision of the book and Major Harrison has practically rewritten several of the most important chapters. The details of Salvarsan and Neo-Salvarsan treatment are given in a very clear minner.

In view of the increased attention now being paid to the prevention and prophylaxis of venereal diseases we can strongly commend this up-to-date volume to all practising physicians and surgeons in India. It is an admirable book and well worthy of study, perhaps the most useful portion of the book is that on the treatment of that most difficult disease, gonorihea Few prictitioners will fail to welcome this chapter of which the question is dealt with under the following headings, general management, drugs, wiethial.

applications and vaccine and serum therapy. The remarks on the local application of heat are novel and instructive Di Valentine of Silchar has invented a hot-water bougie, that has been used with success by Major Harrison.

Manual of Bacteriology.—By R Muin and J RITCHIE Sixth Edition, 1913 Henry Frowde and Hodder and Stoughton

This well-known manual was first published in 1897 and here we have the sixth edition

The book has been thoroughly revised and brought up-to-date. Tropical diseases are well treated within the chapter on cholera, inclarial fever and amobic dysentery and the Leishman-Donovan bodies, an admirable bibliography completes the book. It is needless to do more than introduce to our readers such a well-known and approved work.

Hints for Regimental Medical Officers of the Territorial Force—FROSTER GROOM & Co, Ld, London Pince Is 6d net

This little booklet is written by Capt M F Grant, RAMC, the Adjutant of the RAMC School of Instruction.

The little book is a wonderfully neat compilation and full of information in the duties of Territorial Medical Officers—on sanitation at headquarters, examination of recruits, instruction in first aid, annual training, duties in camp, communication with the C O & A D M S, training of personnel, equipment, returns, etc The whole book is not bigger than a card case and can be easily carried about in uniform. In its line it is excellent

Incipient Pulmonary B Lels Publishers H K Lewis & Co.

This small book is very welcome in that it gives in a convenient form the teachings of Di Lees as expounded in the Bradshaw lecture of 1912. To percussion is assigned the greatest value in early diagnosis, and certain defined areas to be sought for are detailed. Though greatly admiring Di Lees' skill in determining areas of imparied resonance with as small a diameter as half a finger breadth, we are of opinion that the marking out of the limits of the apical border resonance will be found of more general value, together with an examination of the area internal to the supra-spinous fossa.

The inhalation of volatile substances is placed in the forefront of the treatment of early pulmonary tuberculosis and is supported by details of convincing cases and the author shows that even in advanced cases his method is often of considerable value. From our own experience we have found much benefit from this treatment and consider that Di. Lees' method, the details of which should be closely followed, is a reliable aid even if it is not the nearly absolute cure he

Vertebrate Embryology—By J W JEN-KINSON, MA, DSc, lecturer in Embryology Oxford The Clarendon Press Price 12s. 6d net.

This book gives an excellent account of recent research in vertebrate embryology. It is written by one who has devoted much time to this particular branch of Biology and is, therefore, in a position to speak with authority on the subject Books of this kind, containing the results of recent research in concise form are of special value to teachers and senior students in India who have less opportunity for consulting original publications than their fellow-workers in England At the present day the scope of the Biological sciences is so wide that a particular branch such as vertebrate embryology is large enough to engage the whole activity of a single worker, consequently it is scarcely possible for anyone but an embryologist to review a book of this kind in a criticial manner

Certain passages, however, arrest the attention as illustrating the decline of the older generalities. For example "It will have been repeatedly noticed that the same elementary organ or germ layer may come into being by different processes

The way in which an organ is developed is not therefore necessarily a criterion of its homologies." At the same time, other generalities, perhaps more important ones, are taking their place. For example, the view that the foundations of an organism are inherited through the cytoplasm of the female germ, while the less important details, generic and specific, are conveyed through the nuclei of the germs of both sexes.

Minor Surgery — Ey L A BIDWELL, FRCS. London University Press

This is a useful little volume on Minoi Surgery, which forms a part of a new series called the London Fractitioners Manuals. It is mainly an amplification of the author's Postgraduate Lectures at the West London Hospital. It consists of 11 Chapters and a very useful appendix and a good index.

The little volume is clearly printed and fully illustrated and will prove very useful to students, especially in the out-patients' department, or when holding clinical appointments. We can recom-

mend the book

Anæsthetics and their Administration - By Sir Frederick W Hewitt, M v o., M A, M D Fourth Edition Pages 676. Illustrations 71 Macmillan & Co, Ld, St Martin's Street, London

This well-known book on anæsthetics has had various sections rewritten in the present edition

The first few chapters are concerned with the properties of the various anæsthetics, with the physiology of anæsthesia and of general anæsthetics. After this come chapters on the selection of an anæsthetic including the various sequences which are used and the relation of the condition

of the patient towards the particular drug which is to be employed and also the operation which is to be performed, there is as would be expected, much sound advice here the directions being clear and to the point

The extraneous circumstances of anæsthetisation are then dealt with including posture of

the patient, surgical shock, etc, etc

The author's remarks on the preliminary use of morphine and other alkaloids are well worth read-

mg

Most of the remainder of the book deals with the actual administration of the various ancesthetics with a description of the apparatus required, the various mixtures and sequences are also considered

The author very rightly thinks that students ought to be taught methods of giving chloroform which they will be able to employ in general practice and not methods for which a cumbersome apparatus is required and which would later in their careers probably not be available

A new feature of this edition is a chapter on local and regional anæsthesia which deals with the subject on the same lines as those employed

for general anæsthesia

The author's views on spinal anæsthesia are that as a routine measure it should be absolutely condemned

The indications and contraindications for this method are very fairly discussed, as regards the mortality, it is pointed out that spinal anæsthesia has a direct mortality greatly in excess of that due to general anæsthetics administered by expert anæsthetics and that moreover up-to-date spinal anæsthesia has been in the hands of the highly expert, with others the dangers would increase

The illustrative cases scattered throughout the book are very useful

The book can be confidently recommended to those who wish to gain a complete knowledge of the subject

Coprostasis its Causes and Treatment— By Sir James Sawyer, M D Birmingham Cornish Bros, 1912

This is an admirable and practical little book which practising physicians will find of much Habitual constipation is a complaint every medical man has to deal with and one in which the skilled clinician is able to do much good the present little book some chapters appeared in the author's Contributions to Practical Medicine It contains six chapters and (5th Ed, 1912) their contents will be gleaned from the following headlines, viz treatment of habitual constipation, a clinical lecture on some points in the treatment of the severer forms, clinical observations on intestinal occlusions, lumbago coprostatica, or the backache of loaded colon, and pilewort and Sir James Sawyer emphasises in more than one place the importance of "not presenting drugs till we find the constipation cannot be

cured without such medicaments. To open the bowels is not to cure construction."

He also shows the value of exercises, such as respiratory exercises, walking, riding and various gymnastic exercises and in addition the regulation of diet. In the chapter on the severer forms of constipation the value of O'Beirne's tube is explained. Sir James seems to prefer the old remedy of socotrine aloes (2 or 3 grains), with extract of hyoscyamus (1grain), and sulphate of iron (\frac{1}{2} grain) in a pill at bedtime, the quantities being adjusted to the individual patient. In his last chapter he shows the value of pilewort in the treatment of piles. We can strongly recommend this practical little book. Every physician will find it of use.

### Diet Lists of The Presbyterian Hospital, New York.—By H S. CARTER, M.D. London W B Saunders Co., 1913

This is a useful compilation of diets in use in the Presbyterian Hospital in the city of New York, it is however more than this, for it gives many useful explanatory notes and a complete table of the chemical composition of the chief foods used in the United States. In addition to the regular house diets it gives special diets for patients with various diseases, typhoid, three fluid diets, "saltpoor diets," "purin-free diets," "gastric diets," "diabetic diets," "low calcium diets," "diet for diarrhea," "obesity diets," test meals, special diabetic recipes, miscellaneous recipes, and comments on the "Kavell treatment" for anasarca and the "Von Leute treatment" for peptic ulcer. It will be found most useful

The Surgical Clinics—John B Murphy, M D, at Mercy Hospital, Chicago Vol II, No 2 Published bi-monthly by W B Saunders Co, Philadelphia and London Price 35 shillings annually

This number is on the same lines as those which have been already reviewed in this journal. There are several cases of gastric and duodenal surgery and others are fractures, transplantation of hone, cerebellar tumour, etc., etc.

A new feature of this volume is that medical and other aspects of some of the cases are discussed by other doctors presumably colleagues of Dr. Murphy

This volume is as good as previous numbers

A Text-Book of Surgery for Dental Students
—By G P MILLS, ME, BS, FRCS, and H
HUMPHREYS, ME, ChB, BOS, LDS Pages 340
Illustrations 56 Price 12s 6d London Edward
Arnold. Bombay Messrs Longmans, Green & Co

This book has been written to meet the requirements of the present curriculum of the Royal College of Surgeons of England

It is mainly concerned with general surgery, but some regional surgery is also included, the sections which relate most closely to the work

of the dental surgeon are necessarily more elaborated than others

It can be said that the book is well and clearly written, is modern and should serve its purpose admirably

# Aids to Public Health.—By D Sommerviller, M.D., DPH.

This is an excellent resume of public health work intended for the student at work in the Laboratory. It deals with water, sewage, soil, air, foodstuffs, antiseptics and disinfectants.

The remarks on filters, waterborne disease, putrefaction and septic tanks and the chapter on foodstuffs are very good and much attention is paid to the chemical side of the subject. The chapter on disinfectants is highly technical, possibly too much so—but as the book is mainly intended for those who have studied larger treatises no harm is done. The book will be useful to men going up for the D. P. H. Examinations

Vaccine and Serum Therapy.—By D<sub>1</sub> E H
Schorer Second Revised Edition St Louis C
V Moshy Company Price 3 dollars.

The book is divided into five chapters. In the first chapter the course of infections is discussed and in the next the theories of immunity, then follow two chapters dealing with specific diagnosis and therapy, and in the final chapter the specific diagnosis, treatment, and prophylaxis in the different infections are described. There is an appendix which treats of the diagnosis, treatment, and prophylaxis in syphilis and malaria. There are a number of illustrations in the text.

In regard to opsonic index determinations, he states that, "Wright's method of the determination of the opsonic index has yielded such inconsistent results that more work on this subject seems justifiable" As the book emanates from America, it is interesting to note the Author's views on the extensively advertised preparations known as "phylacogens" He says, "Phylacogens themselves are supposedly sterile aqueous solutions of metabolic substances of derivatives generated by the bacteria grown on artificial media"—whatever that may be and, further, "Opportunity has presented itself to me to see a number of patients treated by phylacogens and in no case could I see where beneficial results could be ascubed to the injection of phylacogens" In regard to the use of Salvarsan in Syphilis, he says, "It cannot be stated at this time that Salvarsan is more specific than mercury It will take from twenty to thirty years to decide that He adds "It is to be hoped that the remedy will not be cast aside for a time as was tuberculin, but that it will be used honestly and conscientiously when indicated" It is a pity that there is no reference to the vaccine treatment of so important a disease as leprosy, and the discussion

of the scientific evidence of the curative value of tuberculin might have been more exhaustive, the book on the whole, however, deals fully with the subject and is quite up to date

Reports from the Laboratory of the Royal College of Physicians Edinburgh —Edited by Di G LOVELL GULLIND and Di JAMES RITCHIE Edinburgh Oliver and Boyd

The Laboratory of the College of Physicians since its inception a number of years ago, has been the important centre of medical research in Edinburgh, and a great deal of excellent work has emanated from it in the pist. Many of its old workers are now leaders in scientific research in Scotland, and elsewhere. The present volume, No XII, shows that, under the direction of the present Superintendent, Dr James Ritchie with the co-operation of his colleagues, the laboratory is maintaining the same high standard

The volume mainly consists of reprints of papers which have been already published this system is an excellent one as at the same time it enables the Authors to publish without undue delay the results of their investigations in widely distributed and well-known Journals, and obviates the necessity of the College issuing a special publication of its own, the reprints of the articles being available for their Report The subjects dealt with in the present volume are Anatomy, Pharmacology, Pathology and Bacteriology is not possible in the space at our disposal to notice all the papers, the volume itself should be perused by those interested in the subjects valuable paper on "the Suprarenal glands in Diphtheria Toxemia" by Dis J Ritchie and A Nimian Bruce, it is stated, p 132, that "There is no neutralisation of diphtheria toxin by adrenalm, not of adienalm by diphthetia toxine" This statement is not in agreement with the results recently obtained by A Marie in his researches on the Suprarenal glands and Toxi-infections

### ANNUAL REPORTS

### PUNJAB LUNATIC ASYLUM.

There were 537 male and 13 female lunatics in the fine Central Asylum at Lahore Lieutenant-Colonel Ewens, IMS., was in charge during the year 1912 Colonel Bamber, who submits the report, writes as follows—

"Including 148 patients under treatment in the Asylum at the beginning of the year, 180 criminal patients were treated, of whom 165 were males and 15 females. Of these 21 males and 3 females were discharged, 8 males and 1 female died, leaving 136 males and 11 females under treatment at the close of the year Although there was no case of suicide, two muiders of one insane by another were committed and were separately reported to Government. A large proportion

of the male insanes is of a most dangerous and homeidal character, and it always needs extreme care and rigil ance to prevent such unfortunate occurrences happening even more frequently than they do. During the year all the barracks and cells were under repair which, in addition to temporarily lessening the amount of cellular accommodation available for these dangerous cases, necessitated a large number of bricks and other potential missiles being left about, and made it difficult to prevent serious assaults. Had it not been for these accidents and the outbreak of cholera, the death rate for the year would have been one of the lowest on record No escapes occurred during the year."

The following extracts are taken from the Government Resolution on the report —

"The Superintendent has often deplored the very inferior quality of the attendants, and has expressed the opinion that, with firmer and more courageous control of the patients, the danger of assaults would be much reduced. There has been special difficulty with the male European inmates in the absence of a European at tendant. The Lieutenant Governor has recently said tioned the employment of one European and two additional Indian attendants. The pay offered for the latter will, it is hoped, attract men of the type of retired soldiers of approved service, who will supply that element of firmness tempered with consideration which the Superintendent desires."

### BOMBAY LUNATIC ASYLUMS

The Hon Surgeon-General Stevenson, CSI submits the report on Bombry Asylums, from which we made the following extracts —

"Work on the new Central Asylum at Yerivda has progressed steadily Since October 1912, Captain Shaw, I ms, has been in residence there, evercising a general supervision over the work and advising with regard to fittings, and small alterations and improvements in the buildings. He has also completed arrangements for furniture and dead stock of various kinds and advised on the subject of the staff to be entertained. His presence and advice have been of the greatest value. It is expected that the asylum will be completed and ready for occupation by the end of May 1913.

As is usual amongst insine prtients, dysentery and diarrheea, with accompanying exhaustion, are answer able for a large percentage of the deaths. Many prtients are admitted to the asylums already suffering from these complaints, commonly due to bad food and exposure. During the past year 29 deaths have been reported as due to tuberculosis in one form or another, and possibly other cases in which death followed bowel affections, and in which post-mortem examinations were not obtainable, were really also due to this cause. An appreciable percentage of deaths occurred among patients who had been many years in an asylum and who had reached old age.

"The daily average strength was 1,048 9 (males 836 9 and females 212 0) as compared with 1,019 8, (males 801 6, and females 215 2)

"Of the total treated 128 were cured against 136 in 1911, 108 insanes were transferred to the care of friends against 104 in 1911. Of those transferred under this head, 76 had improved and 32 had not improved while under treatment.

"Of the 20 insanes shown as discharged 'otherwise' 6 were removed to the non-criminal list, 5 escaped from the asylums, 5 were transferred to hospitals for treatment and 2 to other asylums, and 2 were sent to stand their trial

"The daily average of sick was 398 as compared with The general health in the asylums was satisfactory with the exception of those at Naupida, Poona, and Hyderabad, Sind At Naupida it is reported as being unsatisfactory, at Poons as fair, and at Hyderabad malarial fevers and cachevia were prevalent nas no epidemic disease in any asylum

"The general management of the asylums during the car has been very satisfactory. The pay of the year has been very satisfactory warders has undergone tertsion, and been increased in a number of cases, with satisfactory results, though the class of men obtainable for this work is not yet what

one would like to see it '

The Bombay Presidency has 7 Asylums at Colaba, Naupada, Ratnagui, Poona, Dhaiwai, Ahmedahad and Hyderahad (Sind), but the total number of lunatics amounted on 31st December to 1,042 males and of which 209 were females,

## VACCINATION IN ASSAM

Colouel R Neil Campbell, CB, CIE, IMS, submitted this report from which we make the following extracts.

"The percentage of successful operations—The percentage of success of operations performed by all establishments combined was 97 91 in the case of primary vaccinations and 73 99 in that of re-vaccination, agrinst 9814 and 8098, respectively, of the

previous year

"The successful percentages in primary vaccinations were and 1e viccinations in the case of vaccinations and 1e viccinations in the case of vaccinators were 9792 and 7301, respectively, against 9819 and 8028, respectively, of the previous year, in the case of the dispensary staff 9620 and 7541, respectively, against 9754 and 9487, respectively, of the previous year, and in the case of other agencies 0746 and 8440, respectively. in the case of other agencies 97 46 and 84 49 respectively, against 97 28 and 83 33, respectively, of the previous

"The total number of persons successfully vaccinated during the vear was 44 57 per mille of populations against 41 85 of the year 1911-12

"Different methods of caccination -As in previous years, all vaccination operations were performed with glycermated lymph manufactured by the Vaccine Depot nt Shillong

" Vaccination work in different districts—Out of the 12 districts and 1 Native State composing the province, there was an increase of vaccinations in 9 and a decrease

in 4, as compared with the previous year
"The increase (28,522) is specially noticeable in the district of Silliet where, as stated in paragraph 4 of the report, saccination was rigorously pushed as a preventive measure against small-pox, which was unduly prevalent in several villages in the Habigani, Sunamgani and North Sylhet subdivisions sions has two permanent vaccinators, who were sent to the affected localities in rotation The Sunangan; Local Each of these subdivi-Board entertained four extra vaccinators nation inspecting staff was sent to infected places to induce the people to accept vaccination. In this connection Captain Scott, Civil Surgeon, Sylhet, remarks would be a very simple matter to suppress epidemics, if the people were willing to accept vaccination, or if some means of compulsion could be employed, but as things are, it is a difficult and tedious process to get sufficient vaccinations done to check an outbreak.

"Thanks are due to the Subdivisional Officer of Sunamganj, who rendered great assistance by personally visiting the affected areas As a result of this, a very

large number of revaccinations were performed forthwith, and the epidemic rapidly subsided

"The Civil Surgeon personally visited with good results, several places in which the populace was opposed

to raccination

"The experiment to work the district with licensed vaccinators, to which reference was made in the last year's report, shows small promise of success, as much difficulty was experienced in the realisation of fees It might be discontinued in the next season

"A Gonol was found inoculating in a village in the Sunamganj subdivision, legal action is being taken to

deal with the offender

"The next highest increase of 4,241 operations, recorded in the Khasi and Jaintia Hills, is due to the fact that the additional vaccinators sanctioned in the season 1911-1912 displayed greater activity during the year under review than in the previous year. At first, the pay of At first, the pay of these vaccinators was fixed at Rs 16 a month for six months and at Rs 8 a month for six months representation of the Civil Surgeon, their pay has been raised to Rs 16 a month throughout the year

"The increase in Cachar is partly due to better supervision of the vaccinators, who are now made to submit the return of their work done, week by week, and partly also to an increased number of operations being

performed on the tea estates

"In the Lakhimpui district, people generally accept vaccination The only section of the population, who oppose vaccination, are Muttocks The Deputy Commissioner has promised to address their headmen with a view to producing a more favourable attitude towards

"The increase in the Kamiup district has been main-The year's work is the more satisfactory in that among the 'Mahapurushias,' who are notorious in their objection to vaccination upon religious grounds,

6,422 operations have been performed

" Vaccine Depart - The total cost of the depot was Rs 22,944-74, against Rs 23,468-1-11 in 1911-1912. The number of tubes loaded during the year was 1,819,859, against 1,716,933 of the previous year, showing an increase of 102,921 The average cost per tube during the year was 24 pies
"Of 962 calves inoculated, lymph was taken from 133

There were 38 failures and lymph was not taken only from 91, either on account of illness or because the

vesicles were not satisfactory

"This depôt continues to supply lymph to the Eastern Bengal districts The quality of the lymph is reported

to be excellent
"The plan and estimates for a new vaccine depôt are under preparation in the Sanitary Engineer's office

# THE HYDERABAD PLAGUE REPORT (1913)

This admirable and complete report on "the recent epidemic of plague in the city of Hyderaabad" (Deccan) has been written by Lt -Col H L Dinke-Brockman, INS, the Director of the Hyderabad Medical and Sanitary Departments

The epidemic under report began in August 1911 and subsided about the end of April 1912 There were reported 18,478 attacks and 16,901 deaths in a population estimated at about 387,000 For seven weeks at the height of the epidemic the number of deaths from plague exceeded 1.000 This was the first outbreak of plague in Hyderabad and it was a very virulent one The population of the city is largely an ignorant one it is "armed to the teeth" methods were wisely avoided and we may well hence compulsion congratulate Lt - Colonel Drake-Brockman in that so little occurred and that "in the end the people

came to realise the benefits of evacuation, inoculation and disinfection "Rats probably introduced the disease

The Government Secretary in an interesting note acknowledges the valuable work done by Lt-Col Drake-Brockman, and comments on the relative incidence of the disease among Hindus and Mahomedans. The Mahomedans are slightly in excess in number yet they had less attacks among them, but the case mortality was higher, the Hindus, a somewhat smaller community, had more attacks but a higher percentage of recoveries.

The report is admirably and graphically illustrated Space does not permit us to follow I t-Col Drake-Brockman in his clear and detailed account of this formidable epidemic and we can only notice a few of the results

As regards the Rat Campaign, only 4,096 were caught and destroyed. Lt-Col Drake-Brockman has some very interesting remarks on the rivalry between rats and bandicoots and upon the ments of the Dhaman snake (Zamenis mucosus) as a rat destoyer and his suggestions are worthy of further observation

Health camps to the number of thirty were set up and used. As for disinfection, in the first place the men employed were protected by inoculation and their feet and legs protected against fleas and we agree with him that "real disinfection" (qua plague) means evacuation of huts, unroofing and exposure of the inside of the houses to the rays of the sun. To evacuate a house and leave it locked up only exposes the owners to danger on their return. The connection between grain godowns and rats is well known, and Captain Taylor, I M S, found that rats and mice ate castor-oil seeds as well as other grains.

We may call attention to the useful notices of outbreaks (reproduced in the report) and also the tickets of inoculation, etc., which might well be

copied in other places

The value of moculation is over again proved by this report. We cannot give all the details so admirably set forth in this report, but the following facts speak for themselves. There were of men, women and children 78,278 incoculated and only 162 persons were attacked by plague out of this large number. This entirely voluntary moculation campaign was also remarkably cheap, as it cost only 3 annas 5 pies per head. The following table is worth reproducing.

	լ՝ օէռ] numbor	Total attacks	Total deaths	Proportion of allack to whole pop (per 1,000)	Proportion of deather to whole pop (per 1,000)
Inoculated Not moculated	78,278	271	162	7	4184
	3,08,855	18,478	16,901	47 7303	43 6568

We recommend all working at plague to read and study this excellent report. It is one of the best of the many plague reports that we have read during the past 16 years and we congratulate Lt-Col Diake-Brockman and its able staff on the results obtained and the admirable way in which the work is recorded.

#### HOSPITALS REPORT

BENGAL.

This bilef annual report is submitted by Lieutenant-Colonel W R Edward, C M G, M D, I M S, the Officiating Inspector-General of Civil Hospitals, Bengal, full comments are reserved for the triennial report

We make the following extracts -

"The urgent need of more nurses at the Eye Hospital has been repeatedly brought to notice, and I am glad to say that the Calcutta Hospital Nurses' Institution has now obtained the sanction of Government to the appointment of two additional nurses there. The employment of one additional nurse for the cholera and plague ward, and of six in the general wards, of the Campbell Hospital has been sanctioned this year. The nursing service at the Howrah General Hospital gave excellent results during the past year, when the staff was raised from 5 to 8. The increased admission of paying patients, under women and children, is believed to be due to its existence

"There is practically no satisfactory arrangement for nursing in the mufassal hospitals, where it is generally done by untrained ward cooles. This is primarily due to want of funds. Some advance has, however, been made in this most important matter, and efforts are being made at certain stations to improve the nuising. Besides the Darjeeling Hospital, which employs two European nursing sisters as well as an Indian nurse, and a staff of pupil nurses and dhais, the Berhampore and Hooghly Imambara Hospitals have each entertained two European nurses, out of funds locally raised and aided by Government. The Civil Surgeon of Serampore is also trying to do the same for the Walsh Hospital, and has already secured a Government grant of Rs 1,500 per annum towards the cost."

This matter of nursing in mofussal hospitals has already been energetically taken up by Her Excellency Lady Carmichael and a scheme is being prepared for training nurses for mofussal hospitals

"In surgical work there was an increase of 1,806 operations performed, the figures being 36,113, against 34,307 The medical officers who performed the largest number of selected operations were —Major W V Coppinger, 769, Lieutenant Colonel F P Maynard, 481, Lieutenant-Colonel R Bird, 363, Lieutenant Colonel C R Stevens, 317, Captain A H Proctor, 241, Lieutenant Colonel C R M Green, 231, Lieutenant-Colonel E A R Newman, 185, Captain V Green Armytage, 169, Captain H B Steen, 154, Captain J D Sandes, 131, and Major J W F Rait, 108 Among Assistant Surgeons, Kedar Nath Das performed 318 selected operations, Karuna Kumar Chatterjee, 298, and Jogesh Nath Sen, 232 Miss Kate Platt, Lady Doctor, Calcutta Dufferin Hospital"

### BENGAL LUNATIC ASYLUMS

THE report is written by Colonel G F A Harris, CSI, FRCP. Inspector-General of Civil

Hospitals, Bengal We make the following extract—Since the report was written attention has been forcibly directed to the many improvements needed in the old European Asylum at Bhowampur, Calcutt, and much is now being done to improve that old Asylum though till the Ranchi scheme is started it cannot be said that the problem of lunacy has been properly solved in Bengal

"The constitutional changes necessitated a revision of the territorial jurisdiction of the Lunatic Asylums, the following places having been allotted to the three Lunatic Asylums respectively —

Bhowanipore Asylum -All European and Eurasian lunatics from any part of the Presidency

Dacca Asylum—All Indian lunatics from the Dacca and Chittagong Divisions, and the districts of Rangpur and Pabna of the Rajshahi Division

Berhampore Aylum — All Indian lunatics from the Burdwan, Presidency and Rajshahi Divisions (except the districts of Rangpur and Pabna) and the town of Calcutta

As the Patna Lunatic Asylum, which is the only place in the new province of Bihai and Olissa for the reception of meanes, is not sufficiently large to accommodate new admissions from all the districts of that province, it has been mutually arranged between the two Governments that the Berhampore Lunatic Asylum should continue to receive insanes from those districts of the new province which were previously allotted to it till other arrangements have been made for the reception of the insanes of that province Very little advantage was however taken of this concession during the past year, only four lunatics having been sent to the asylum from the Bihar Province, vis, two from Cuttack and two from Puinea There being no asylum in the new province for the accommodation of European lunatics, the Government of Bengal, at the request of the Government of Bihar and Orissa, has also agreed to allow European insanes of that province to be admitted for the present into the Bhowanipore Lunatic Asylum"

The death rates in the various parts of India are given as follows by Colonel Harris —

Bengal 79 per mille, U P 95, C P 102, Bihai 105, Madias 112, Bombay 153, Assam 202, and Burma 257 per mille of daily average strength These are high figures, but in Asylums death rates are necessarily high

that a Central Lunatic Asylum for Indians should be constructed at Ranchi on a sufficiently large scale to meet the needs of the two provinces, and that it will be worked by the Bihar and Orissa Government, Bengal, paying a contribution in proportion to the number of Bengal lunatics accommodated Fresh designs are now under preparation by the Bihar and Orissa Government in consultation with the Engineering experts and the Inspector Generals of Civil Hospitals of both provinces and the Superintendent of the Berhampore Lunatic Asylum.

The Lunacy Act, IV of 1912, came into force from the beginning of the year. This has necessitated a revision of the Lunatic Asjlum Manual of the province, which has been undertaken by Captain Peebles, Superintendent of the Central Asylum at Berhampore. Section 4 of the Act provides for the admission of voluntary patients. None were however admitted under this section."

"A question is under consideration for providing further temporary accommodation at the Berhampore Limited Asylum, to cope with the steady increase of the insine population, and to enable the work to be properly carried on until the Central Lunatic Asylum at

Ranchi is ready, and also to accommodate the lunatics that may be received from Bihai and Olissa

The Lunatic Asylums were under the charge of the officers named below —

Bhowanipore—Captain H B Steen, MD, 1.MS, from 1st January to 22nd August, Captain A Denham White, IMS, from 23rd to 28th August, and Captain D Munio, IMS, from 29th August to the end of the year

Dacca — Major E C MacLeod, I.M.S., from 1st January to 10th March, Captain J W McCoy, IMS, from 11th to 31st March, Lieut Col E A W Hall, IMS, from 1st April to 24th October, and Lieut-Col A R S Anderson, IMS, from 25th October to the close of the year

Berhampore—Captain A S M Peebles, MD, IMS
All these officers I consider are to be congratulated
for the good work they have done in the year, and for
the efficient and smooth management of the asylums,
but I wish specially to emphasise the zeal and interest
evinced by Captain Peebles, Superintendent of the
Berhampore Asylum—I do not think this asylum could
be in the hands of a more capable or more sympathetic
officer, and one moreover who never spares himself."

## VACCINATION REPORT, PUNJAI:

The most interesting part of Lieutenant-Colonel Browning Smith's report on vaccination in the Punjab is that on the vaccine lymph supplied—

"Of the 34,942 tubes supplied, result statements were received in the case of 31,189, these statements show that 920,358 primary and 319,600 revaccination operations were performed with an average case success of 94 12 per cent, and an insertion success of 94 51 per cent, in primary operations and a case success of 80 48 per cent, and insertion success of 69 10 in revaccination as compared with 90 09 and 91 52 per cent, in the former and 71 76 and 66 87 per cent in the latter in the year preceding, this increase in the percentage of successful results is very satisfactory and is doubtless a real one, for it is confirmed by the results as reported by vaccinators and also by the inspection of the Deputy Sanitary Commissioner, of Civil Surgeons and of Divisional Inspectors and Superintendents of vaccin ation. This happy result is almost certainly due to the improved conditions in which the manufacture of the lymph is carried on in the new Institute buildings

The method of preparation and testing of chloroformed glycernated vaccine differed in no respect from that of the previous year. Virulence of stock is mph was successfully maintained by alternate passage from buffalo to cow calf and vice verso. Vaccine was this year also supplied to the Bangalore and Belgaum Vaccine Institutes with which potent strains were successfully established in those places.

From Attock, Rohtak and Dera Ghazi Khan districts, however, complaints were received that chloroformed glycerinated vaccine either did not give good results of did not confer immunity from small-pox Searching enquiries were held on the spot in several places, but no sound evidence was for theoming against the potency of the lymph, a few cases of mild small-pox with very slight scarring were discovered in children of nine or ten years of age who had been vaccinated in infancy, when it is remembered that the age of election for reaccomation in temperate climates is twelve years (the age for compulsory revaccination in Germany), it is evident that such cases must be expected in the natural course of events, especially if the varying susceptibility of the individual and the inevitable variation in efficiency of the actual operation is considered, the subject is still under enquiry, and a general investigation throughor the Province is proceeding Such rumours are naturally prevalent when small-pox is rife, for the people generally

expect too much from vaccination and are inclined to discredit it when they see that it does not always confer absolute and lifelong immunity from the disease, they do not seem to realise that only a relative and temporary protection is to be expected from the operation and generally do not recognise the necessity for revaccination The Civil Surgeons whom I consulted speak very highly of the lymph judged by the actual results obtained by themselves"

# Coppespondence

#### THE PREPARATION, JINTAN

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In your issue of the Indian Medical Gazette for the month of August 1913, I had sent a contribution titled "A Morphine Containing Patent Diug" The manager of the Agency of the said pills has shown me certificates from eminent authorities like the Chemical Analyser with the Government of Bombay and I am quite satisfied with them I do not hence feel myself justified in holding my opinion against that of the Chemical Analyser, and therefore take back my statement fully and unreservedly. I regret that the patent drug manufacturers had to take the trouble of sending the copies of certificate and any inconvenience should be caused them as a result of my former letter.

I beg to remain, Sn, Yours obediently, S V SAVANT, State Surgeon, Demas

#### IODINE AS AN AID TO ASEPTIC VACCINATION A REPLY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

Sir. - As the author of "the recognized antiseptic method" of vaccination practised for some years in Bengal, I desire to call attention to certain "terminological mexactitudes" and misapprehensions founded on them, which have found expression in Major Waters' article on "Iodine as an Aid to Aseptic Vaccination"

I wish to make it quite clear at staiting that it is not my intention to decry the use of iodine or beland the use of perchloride wool, but only to correct certain very mistaken

impressions

To quote his own words the italics are my own —"The recognized antiseptic method is not a success, it is too cumbrous and troublesome. The noutine prescribed so far as I remember it is something as follows. The child's nim cumbrous and troublesome The noutine prescribed so far as I remember it is something as follows. The child's nime is to be washed with soap and water, then subbed vigorously with the perchloride wool provided and finally washed again with soap and water. The lancet is then to be sterilized and the operation performed. I do not think that this complicated procedure is ever carried out." (I hope not thoroughly washed away failure of vaccination frequently occurs with loss of money and reputation to the vaccinator."

This is drastic enough in all conscience, and yet it ben's a close resemblance to the process of giving a dog a bad

a close resemblance to the process of giving a dog a bad name and then hanging him. I sympathize with the dog, I never sufficiently realized before what his feelings must be really do not recognize my own method.

I never sumciently lealized before what his feelings must be I really do not recognize my own method Major Waters' defects of memory however he more than atoned for by the fertility of his imagination. The method he describes is, I agree both cumbrous and troublesome but—it equally certainly is not "the recognized method of anti-septic vaccination" which I initiated. Passing over the fact that recollered of merenty and soan are incompatible. septic vaccination" which I initiated Passing over the fact that petchloride of mercury and sorp are incompatible, (a sufficient reason to my own mind for not advocating such a combination, especially when rodide of mercury soap was already available on the market) I may state that my method simply consists, in wiping the skin at the site of vaccination and "the business end" of the lancet with a pledget of perchloride cotton wool moistened in water I appeal to you, Mi Editor, and your readers, could anything be simpler? Could anything be less cumbrous? Could anything be more dissimilar than the method ascribed to me by Major Waters? The subtlest touch lies perhaps in the words 'the lancet is then to be sterilized". Observe the infinite possibilities. Visions of carbolic, sterilizers and

infinite possibilities. Visions of cardolic, sterilizers and spirit lamps float before my eyes."

I may briefly recount the history of the genesis of my method. In 1904, Hazaribagh where I happened to be transferred to was one of the four or five districts selected for experimental antiseptic vaccination. I had the whole hot weather to ponder over the subject. The problem as it pie sented itself to me was this. Wanted something simple, some thing chean, and as reasonably efficient as could be hoped for thing cherp, and as reasonably efficient as could be hoped for under the special requirements of an uneducated vaccinator under the special requirements of an uneducated vaccination wandering at large over the countryside. After considering and rejecting many methods, I finally issued orders to a municipal vaccinators to vaccinate an equal number of children, after each of the following methods of preparation (a) Nothing at all (b) Washing with soap and water applied with cotton wool (c) Washing with 1—500 perchloride cotton wool moistened with plain water. Method (a) was introduced as a control to methods (b d c). To cut a long story short, one set of results never materialized on account of a plague epidemic, another set was clearly utterly unichable after I had an opportunity of inspecting the procedure, and I had perforce to rely on the vaccinations performed at the Sadi Hospital under my assistant's eve, the great mijority of which were inspected 7 days later by myself. An elaborate table was drawn up, showing the number of unsertions, number of successful points and the degree of inflummation under four or five heads from "very severe" to "none at all." The labour was considerable and was spread over at least 5 months. Some 800—900 children were vaccinated, to the best of my recollection.

On working out the results the net conclusion was definitely in favour of the perchloride wool method. No "sex-

On working out the results the nett conclusion was definitely in favour of the perchloride wool method. No "very severe" inflammation, fewer slighter degrees than by other methods, and an agreeably small percentage of puncture failures, which certainly exceeded the other methods—I think—but this seemed a small set off ignise the much superior results in the reduction of inflamed aims. Minor details such as manufacturing the absorbent cotton, devising a carrier and issuing the wool in bulk, completed the scheme Cost any thing from Re. 1 to 1.4 per vaccinator, or 192 mes Cost any thing from Re 1 to 14 per vaccinator, or 192 presper vaccinated child I made an unsuccessful attempt at the time to get permission to publish the figures on which my niethod was founded, but my rough copy was mislaid and the original doubtless reposes in some record room. I regretted this failure at the time, but I regiet it still more keenly 8

years afterwards

Now I do not for a moment uphold the superexcellence of my method, it was only the best I could evolve under certain decidedly restricted circumstances, but any ments it possessed lay, I fondly believed in its simplicity, cheapness and the ease with which it could be practised by uneducated vaccinators. I had also proved to my satisfaction, from an observation of about 300 cases controlled by 600 others, that these reasonably efficient in preventing said and and in it was reasonably efficient in pieventing sore aims and in not seriously interfering with successful protection

It is tather a shock to read after 8 years' trial that I have been cherishing nothing but fond delusions "cumbrous and troublesome," while 'failure of vaccination frequently occurs " Sie transit gloria mundi! I am relieved to find it is not further damned as expensive Cherp and masty perhaps better describes it! This vitue at all events is left, a tattered rag indeed in which to drape its imposture and hide its shame !

But in advocating the superior advantages of rodine is it really necessary to deny any at all to perchloride? Both are active antiseptics. Do I not detect some lack of scientific importality in attributing to the former advantages, which are stigmatized as positive drawbacks in the latter? Does not this savour of an attempt at squaring the circle?

I am quite willing to take Major Waters' word for it that iodine prevents sore aims and does not seriously interfere notine prevents sore aims and does not seriously interfere with vaccinal success but what bearing has this on the actual effect of perchloride? Surely none, except a degree of probability that the latter in common with antiseptics generally tends to prevent sore arms, without interfering with vaccinal success, to the extent that would seem probable on a priori grounds. I hold no brief for perchloride I simply chose it because it was cheep and non volatile and I have long discarded its use in surgery. In private I use spirit have long discarded its use in surgery, in private I use spirit for preparing the skin for vaccination, though I consider acetone preferable to anything Tincture of iodine I use from the 3rd or 4th day only. Its use in this way by public vaccinations is of course impracticable.

I am quite prepared to believe that Major Waters' roding method is a step in advance, and preferable on every ground except cost But before I am convinced, actual concurrent experiments in a fair and consecutive number of cases, per formed under the same account to number of cases, per formed under the same account to number of cases, per formed under the same account to the faithground. formed under the same circumstances, must be forthcoming However suitable his method may be to juile or headquarter vaccination stations, where the conditions of supply are comparatively simple, I doubt if it vill be found so suitable for the mofussil

To show I bear his method no ill will I make two practical suggestions (1) the substitution of a glass thre brush for the camels han brushes, and (2) the inclusion of a well or pigeonhole in a coinci of his equipment box, which will serve to hold the rodine phial securely in a vertical position, when in actual use

Apologizing for the length of this letter

I remain,
Yours faithfully,
E A R NEWMAN, MD,
LT COLONEL, IMS

16, ALIPORE ROAD, Sept 10th , 1913

#### RELAPSING FEVER IN THE DARJEELING DISTRICT

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I would like to briefly record an outbreak of this disease at Margaret's Hope Ter Estate at an elevation of 5,000 feet. The outbreak was traced to the arrival of the wife of a ter maker who arrived ill direct from Neprul

of a ter maker who arrived ill direct from Neprul
This occurred at the end of May of this year
The total number of cases were 25 of these 15 recovered,
10 died, 4 cases relipsed once, and 2 cases twice
The Main Symptoms — Fever beginning in the evening, pain
in the back and limbs Vomiting, diarrhoa, slight jaundice,
in profuse sweating at the time of remission, duration of the
fever six to eight days
These cases occurred in 5 houses, not immediately adjoin

ing having a free vii space between each house Blood slides stained with Leishmann's stain from all cases

spirochates were seen readily, one case showing 10 spirilla in a held viewed through 1/12" oil immersion lense

I have to thank ter garden Dr Babu for histories and sending me the blood slides, Sub Asst Surgeon Sasi M Dass and Compounder Paul of the Kurseong Hospital for staining and preparation of the slides for examinations

KURSLONC Sept 1st, 1913 Yours, etc.,
A D HUMPHRY,
VRUS (Eng.), LRUP (Lond.),
Civil Medical Officer, Kurseong

#### DENGUE IN GUZRAT

To the Editor of "THE INDIAN MEDICAL GAZETTE"

Sir.-I beg to crave your indulgence to spare little space in your esteemed and widely circulated journal for the notes taken by me on Dengue pievalent at Borsad, which will no doubt interest its renders, most of whom I believe must not have seen it before in India

have seen it before in India

Dengue is a specific and highly infectious fever occurring mostly in warm climates in widespiead epidemics. If once introduced into a town or locality it sprends rapidly affecting many inhabitants and almost all members of a family, at present it is prevalent in the whole of Guziat, having made its appearance in Surat in the beginning of summer when the temperature began to rise and then sprending on the north in Broach, Kaira Panchmahals and Ahmedabad districts, not leaving the areas located in Baroda territory intervening them and beyond Ahmedabad such as Patan Mesana, Kisnagar, Vadargar, etc. About 40 years ago it was seen in Guzrat when it was known by the vernacular name of 'Tuntia'.

Eliology—No definite virus has been found out as a second

Etiology -No definite virus has been found out as yet Culex larve are abundantly found but anopheles larve are

totally absent

It generally occurs in the hot part of the year, in the late summer and early autumn, and ceases in the beginning of winter High temperature appears to be one of its conditions for the prevalence during monsoon it does occur but indifferently

Incubation Period —The shortest incubation period noticed

Incubation Period —The shortest incubation period noticed is 24 hours, but are right it ranges from one to four days, the longest one is a week at the most

Symptoms —Initial fever and eruption

First of all there is a feeling of genera' malaise or theuma tic pains in a limb or fingers or toes. It sets in quite suddenly and in most of the cases the fever is ushered in by chilliness or by tigors followed by a deep flushing of the face, in whichever way it begins temperature goes up soon, the head and eyeballs ache excessively and some limb joint, chest or thigh is racked with peculial stiff theumatic like pains which are aggravated by movement. The loins more or less pain and become a seat of great discomfort, the face round the eyes becomes suffused and generally skin of the white body is more or less flushed, the eyes get injected in many cases, congestion and ulceration of the mucous membrane of the mouth and threat is also seen in some cases, the whole face is swollen, and throat is also seen in some cases, the whole face is swollen,

This congested erythematous condition of the and bloated whole body forms the initial eluption These symptoms are intensified rapidly pulse becomes 100 to 120 pm Temp goes up to 101° to 104° or 105° There is inability to move owing to up to 101° to 104° or 105° There is inability to move owing to great headache, the severe pain in loins and limbs and febrile prostration is great. At intervals the skin perspires, but for the most put it is hot and dry. There is generally gastric disturbance and romiting is seen in many cases. Tongue is corted with moist oreamy fur which later on becomes dry and yellow in some cases, the patient continues in this condition from 24 to 48 hours, temperature going down after 24 hours in most of the cases or fever subsides on the 3rd day, by profuse perspiration of diarrhea in some cases. In rare cases there is epistaxis which gives great relief to the head ache. With the subsidence of the fever crythematous of reddened condition of the skin disappears. In rare cases fever subsides slowly during a period of three or four days reddened condition of the skin disappears. In rare cases fever subsides slowly during a period of three or four days without crisis of diaphoresis. Afterwards the patient is able to get up from his bed and passes from the agony of the 1st stage to the calm and comfort of the 2nd one. Sometimes the patient attends to his business when the thermometer teadings are normal, pains in the joints of limbs which continue in very mild form in many cases remind him of the past stage and warn him that he is not perfectly well as yet. There is generally tenderness of the soles and giddiness in walking, the tongue cleans and the appetite returns.

Terminal Fiver and Eruption —This state of good health continues from one to three days There is return of slight fever in some cases high fever in rare cases. It is of a very short duration—a few hours only, some cases had no feven, with the occurrence of this secondary fever an eruption of a measly character appears, the pains necur more severely than in the lat stage in some cases, the fever subsides soon but the eruption which is at times very evanescent keeps out for two, three days or at the most a week longer or is followed by disquimation. The patient does not remain in bed generally at this time, the fever being less or absent and hence overlooked and pains being less severe than before short duration-a few hours only, some cases had no fever before

and hence overlooked and pains being less severe than before

Character of the Louption—It is absent in a few cases and present in many cases, sometimes it is slight so much so that it is overlooked. The cruption is rubeolar in character, it commences usually on prims and backs of the hands extending to the middle of the forearms, with tingling and sometimes pricking sensations, the spots are dusky red, circular and slightly elevated about the size of a pea, it extends and is best seen on the back, chest, face, upper arms and thighs at first as isolated, slightly elevated, circular reddish brown subcoloid spots. I have not seen the crup tion larger than a per but the books say that sometimes it ranges from \$\frac{1}{2}\$" in diameter. The spots enlarge after a time coalesce in many cases and thus irregular large patches are formed leaving only isolated patches of sound skin between them here and there, in a few cases redness of skin is seen all over in an unbroken way. The rest is seen abundantly on the hands, waists, arms and knees where they are coalescent. They fade in the order in which they appear, viz, first on the hands, wrist, arms, neck, face, thighs, etc. Desquamation takes place and lasts for about two, three weeks, in many it is less and furfuraceous, it is ac companied by itching, in some instances the fading of the cuption occurs. Strength is regained by and bye and appetite returns, the patient finds weakness in most of the cases for about two or three weeks, in some instances the loins pain severely and continue paining for days or weeks, sometimes some muscle tendon or joint remains aching or pains in them become so severe as to send the patient to bed again. Kneo is often affected, wrists or shoulders are also affected and their muscles remain paining longer. In one case the tarsal articulations were painful. These pains in the joints or muscles are felt worse when a patient gets out of his bed in the morning and on movement of the one case the tarsal attentations were painful. These pains in the joints or muscles are felt worse when a patient gets out of his bed in the morning and on movement of the affected parts after they are at rest. They are relieved somewhat by rest and warmth. Convalescence is delayed by continuous of pains in which are accompanied by approximate continuance of pains in which are accompanied by anorexia, general debility, mental depression, sleeplessness, evanescent occasional feverish attacks, boils, urticarial eluptions, and by prunitus Lymphatic glands in some cases are also

Relapses are not uncommon, and 2nd attacks are often

Mortality is almost nil but in the case of yery young Mortality is almost nil but in the case of very young children convulsions and delirium appear. In old and infilm persons an attack of Dengue proves fatal. I had one case of an old man who was found to be in the comatose condition had hyperpyrevia and diairhæa and at list succumbed. Pregnant women are not free from the attack, but it does not prove fatal in them not it affects the

I had no opportunity to remark the post mortem appear

Diagnosis -It is easy, owing to the fact that it is attended with a rash, articular pains and occurs in rapidly increasing

It should not be confounded with measles, rheumatism and influenza as well as malarial fevers, whose symptoms are clear and differ from those of dengue. Initial fever with congested erythematous condition of the skin, secondary slight fever mearly eruption and articular pains

nie diagnostic signe in dengue

Treatment -Isolation which is most essential in this in fective type of fever is recommended for, but it is not observed by natives, and hence there are many victims. It runs a de haite course and hence it is useless to attempt to cut it short The patient as soon as he feels ill goes to bed and takes perfect test. He is asked not to leave his bed till his terminal cruptions fade or disquamate and disappear. Light liquid diet is necessary. Diaphoretic mixture is given adding liquid diet is necessary. Diaphoietic mixture is given adding in some cases Tinct. Acouste in moderate doses which no doubt lessens the severity, when the pains are found severe Phenicetin is added to give relief, cold applications to the herd is advised and constipation is not over looked by adding Epsom Salt to the mixture. For pains Liminent Belladona of Opil is given whereby relief is felt. Salicylates and Iodide of Potassium nie advocated not neglecting Quinine early moining for 4 or 5 days. In addition ten of Tulshi (Basil Ocymum Sanetum) and Fudina (Mutha Sativa) leaves twice a day is advised to all patients, who do take it with advantage

In convalencent state tonics such as Quinine, Strychnine, Iron, mineral acids and vegetable bitters such as Quassia Columba Gentian, etc., are administered

The above treatment has given relief to most of my patients by lessening their sufference from severe symptoms or shortening its course to some extent

Yours obediently,

BORSAD DISPENSARY, GANPATRAM DALSUKHRAM, 27th lugust 1913 | Sub Assistant Surgeon Sub Assistant Surgeon

### SALVARSAN IN ORIENTAL SORE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,--Will you or any of your readers kindly inform me through the medium of your journal if injections of Silvaisan or Neo Salvaisan have been tried with success in the treatment of Tropical Ulcer (Oriental Sore)

KINDAT, 1st Sept 1913

Yours, etc., W L BROOKS

#### THE COMMON DISEASE OF HILL PEOPLE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

-On the morning of 13th July 1913, at 5 AM I was called to see a Nepali woman, named Lochmi Kamini, 19 years called to see a Neprli woman, named Lochmi Kamini, 19 years age, who was collapsed from continued vomiting and purging which began at midnight. Her body and limbs were cold and face cyanosed, pulse was imperceptable at wrist, eyes sinken, but her voice remained unaltered (though low). There were intense thust and retching and colicy pain in the pit of the stomach. She was passing watery motions. There were cramps on her abdomen and lower limbs.

I applied hot bottles and hot stones wrapped up over her back and limbs. Turpentine, ginger powder and rum also rubbed over her body and limbs, and ice was given to relieve thust, in the meantime I examined her faces under 2/3"

thirst, in the meantime I examined her frees under 2/3" lens and readily discovered Ova of Round Worm in numbers

The following medicines were immediately administered Castol Oil and Turpentine followed by Santonine and Cinnamon powder 3 doses of abovemisture and powder were Common powder 3 doses of abovemixture and powder were given every 3 hours with stimulating massages and hot applications, one hour after the first dose of the Emulsion and Santonine powder the patient vomited violently which brought up 3 living round worms along with other liquid vomits. This encouraged me to push on the Santonine powders, etc., though the patient was still very restless and retching. At about 2 PM, she had two motions which expelled 31 round worms in 3 bunches some living and some dead. But no improvement of her collapse state, restlesses. detal But no improvement of her collapse state, restlesness and retching, a warm Saline solution with few drops of Turpentine and 2 pints of soap water as rectal douche were applied, with the buttock raised for about half an hour This brought out not only 9 round worms but the signs of reaction followed—Her pulse and breathing improved and marks of cyonosis disappeared Body became warm and thirst relieved

Another rectal douche followed at 5 mg and 100 mg. But no improvement of her collapse state, restlesness

Another rectal douche followed at 5 PM, secured further improvement of her condition, but occasional hiccough began to trouble her now. The following soothing drink was given

to make her quiet and she slept for some hours

A terspoorful of barley water, salt, limejuice, white of egg
duly mixed and strained in a pint bottle given every 15
minutes At 10 P M she passed high colour urine and again slept at night

14th July 1913 - She was better, hiccough left her off at

14th July 1913—She was better, hiccough left her off at night. She felt hungry, but she was still kept on buley water and milk salted rice water and limejuice.

15th July 1913—She was kept on soft rice and dal juice.

16th July 1913—Felt better and began solid food. In July 1902 while I was in charge of the Pedong Dispensury at Sikkim frontier, one Nepali Chetri Boy, aged 14 years came to me from Kalimpong, and said he was suffering from dispensary with troublesome becough for a period of 8 months. dysenters with troublesome biccough for a period of 9 months (for treatment as a last resort). As there was no in door accommodation at the time, I had to keep the boy and his friends in one of the houses in the bazar

The case exhibited the following symptoms on his arrival there—Body and limbs emacated with oedematous feet, Abdomen retracted, pulse feeble with temperature ranging from 99°—101°, tongue red and mitable, conjunctive yellow tinged hiscough comes on now and then Heart and lungs feeble Liver enlarged below 1" costal margin Spleen normal He complained much of the colic pain at navel and straining at his motions, and the stools consisted of scarts frees at his motions, and the stools consisted of scanty frees mixed with mucus and blood stain passed 78 times in 24 hours On examination of the frees under microscope readily disclose numerous Ova of Ascris He was immediate ly put on Santonine, Tui pentine and Emulsion Oil Riction and he was not allowed any solid food, but lice water and milk mixed up with limewater. At about 3 PW, that is, after 6 hours (when he had 6 gis in 2 doses of Santonine from 9 o'clock in the morning) he passed in two motions nothing but bunches of round worms which numbered 57. And the Santonine mixture was pushed on for another two doses for the night. On the morning I counted 61 warm prograd in these the night On the moining I counted 61 worms passed in three motions during the night. His motions and colic pain became less but the hiccough and retching were still troubling The treatment of diet and medicines were continued for six days more which brought out a total number of 267 tound worms. His hiccough disappeared from the 5th day and the motions also become fice from mucus and blood from 7th day, when his foces were again examined. Vory few of the eggs were found in them. But as the boy became few of the eggs were found in them. But as the boy became impatient to see his mother, his relatives took him back on the following morning much improved. Some bitter tonic for a few days use was supplied to the boy with necessary instructions. The total Santonine administered in 7 days was 42 grs which expelled 267 round worms and recovered the long standing hiccough and dysenter.

In my 30 years' service I have had many opportunities to come in contact with diseases of intestinal parasites in Bankura, in Western Bengal, at Mymensing in Eastern Bengal, at Hazipore in Behar, and at last at Pedong and Kuiseong in the hills. I notice in this hill those parasitic diseases are exceptionally common or more than in any

diseases are exceptionally common or more than in any other part of the Province

In this point of view the hill people may be divided into three classes is on Nepaulese, Bhutias and Lepchas The Nepalese are infected with Ascairs, Butias with tape worms, and Lepchas both tape and round worms

The inkylostoma cises he also common amongst girden coolies irrespective of their race and sects. I have noticed some infected with all the three parasites at a time in cises of dysentery which were revealed under microscopical ex amination

The following dispensity figures will show the previlence of intestinal parasite cases over total admission -

Intestinal parasite	2,400	2,595	3,116
Total admission	5,727	6,070	7,026

About 50 p c of the total patients were treated for in testinal parasite

Yours faithfully KURSEONG HOSPITAL, SASI MOHAN DAS, 1st September 1913 Senior Asst Surgeon

#### A CASE OF SINUS CURED UNDER IODINE TREATMENT

To the Editor of "THE INDIAN MEDICAL GAZETTF"

SIR —The following case may interest your readers -

A Hindu lidy, aged 32 years, came with a boil on her left breast about 3 inches below the clavicle for treatment on 31st July 1913. It was found when examined, quite mature and fit for opening. But operation was obstinately refused. Needling by the lady, however, brought the pus out, but there was considerable pain swelling and redness about the region, giving indication of bagging. The external opening even was too small for free and efficient drainage. Operation was again proposed, but refused The wound was probed, and a track to the length of about 2 inches was discovered. 15% watery solution of Iodine (as no sprift was available in my dispensary) was used as antiseptic lotion for washing and Truct. Iodine was painted

externally Internally Pot Iodide gi iii, Tinct Bell's donnae was administered. As for diamage a short strip of lintrinsed in Iodine solution was all that was needed and a loose over dressing and a sling to support the breast. The discharge gradually stopped and the pain, swelling, etc, subsided. In ten days the sinus was completely healed in

up
I beg to invite your leaders to record their experience
I think this method of treatment is only admissible in
I think this method of treatment is only admissible in
uncomplicated cases and under circumstances when opera
uncomplicated cases and under circumstances when opera tion is refused by the patient or there is less risk of considerable damage of tissues and waste of time and general and progressive sepsis is not apprehended I 1emain,

NAGRAKATA P. O (JALPAIGURI), 12th August 1913

Sir, Your most obedient servant, SAT KARI GANGULI, Sub Asst Surgeon

# SUNDAY HOLIDAYS IN MEDICAL DEPARTMENTS

To the Editor of "THF INDIAN MEDICAL GAZETTE"

SIR,—Will you please find a little space for my proposal in your valuable paper and oblige

It is rather curious that the medical department should have no holiday unlike other departments, and it is some times a matter which causes great inconvenience to its

employes

Some years back the work of the Indian dispensaries was Some years back the work of the Indian dispensaries was light as most of the people were used to the eastern methods of treatment, and consequently very few persons attended the dispensaries, so the medical servants had some rest and could do their daily work with ease.

At present I think most of the dispensaries have such a great deal of work that the medical officers in charge of dispensaries and their subordinates get three after a continuous hard work from morning till noon and sometimes till afternoon

after noon

attenuon

It would be advisable if a request be made to Govern

ment for Sunday holidas in all the dispensaries. If Sunday
be not allowed for any reason, some other day of the week

may be selected. The exception of urgent cases may be

made even that day as they have to be seen at any untimely hour of the day or night

hour of the day or night
I hope all the medical officers who are in charge of Indian
dispensaries will please consider over the matter and take
action on the subject if they should not think it unnecessary.
The editors of all the medical papers are requested to
kindly publish the subject for general opinion, for which I
shall feel highly greatful to them.

shall feel highly grateful to them

KAISARGANJ, DIST BAHRAICH, 21st August 1918

Yours etc, AHMAD HASAN, Sub Asst Surgeon

[We sympathise, but we fear that in all lands Sunday shines no holiday to the medical man —ED , I M G ]

### OPTIMISM v PESSIMISM IN I M S

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I was present the other evening at one of those pleasant gatherings of men of our Service which have become a welcome feature of an I M S officer's life in India and was very much surprised to hear our president, beloved

and esteemed to a degree that is the fortune of few address us in tones full of foreboding for the future of our Service.

It is only too true that as regimental officers we may for months at a time be thrust into enforced idleness, that as we grow older our responsibilities may not increase, that in civil we are not eligible for appointments which were open to us a few years ago, that our incomes are not what we expected, and that we can rarely get our leave when it is due. These and more are all true, but in our life in India are there not very real compensations?

It has been my privilege to see my brother officers at work in eight Provinces. Every where I have been shown new hospitals new operations, novel methods of treatment, new schomes for the organization of dispensaries, jails and asylums, and for the reform of the sanitation of cities, towns and villages. To these the authors had in every case given a realous enthusiasm that called facts. given a zealous enthusiasm that called forth my deepest

There is no greater happiness for a medical man than to be able to aid in these ways the progress of his profession, and nowhere are there greater opportunities than in India

A striking feature of the present time is the support these men ieceive. In this country the interest in medical and sanitary questions is so great among those responsible for the government that in these connections a necessity need only to be properly stated to awaken a favourable response

Not less striking is the friendly stimulus we now derive from one non official brethien A brother officer writes me from one non official brethien. A brother officer writes me from a distant mofussil station that a medical society with thirty members has been formed in his town. Your columns report meetings of our professional brothers at Lucknow, Lahore and Dibrughar, and each of the Presidential towns boasts, I understand, of more than one active society.

Last year saw one important Sanitary Conference whose

Last year saw one important Sanitary Conference whose proceedings fill four volumes. Another has already been held this year. A third is notified to take place early in the held this year A third is notified to take place early in the New Year Our corporate professional activity has never been so great as it is now Never has the profession in India been so well placed to promote the welfare of this Empire and never has our Service had better opportunities to serve and never has our Service had better opportunities to serve.

Not are these opportunities to be limited to those, who, often by accidental circumstances, have found themselves in the more purely scientific branches of our Service Progress in medical as in other matters in India may be urged from in medical as in other matters in India may be urged from above, but the real steps are taken not in Simla, or in the laboratories of our special departments, but in our dispensaries, our hospitals, the municipal councils of our towns and the local boards that seek the welfare of our villages. As the District Officer is the mainstay of the Administration in the introduction of reforms so the Medical Officer at his Collector's right hand is the one who above all others in this land, will be privileged to advance his Profession and his Service

We as a service have had our ebb tide but the most insensi his Sei vice tive must feel the coming flood on which we cannot fail to rise to heights of usefulness and prosperity never known before Soon it will be cheerfully said

"Quantum mutatus ab illo"

" Quantum mutatus ab illo

JUNIOR.

## CASE OF HYDROPHOBIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

Sir, -A case of hydrophobia came to the Airah Hospital on the 15th September 1913, in which the history given was that the patient was bitten on the hand by a dog, eight days that the patient was bitten on the hand by a dog, eight days previous to the commencement of the disease, and had not been bitten on any other occasion by any other animal. The man was taken away from the hospital the same day before I had an opportunity of seeing him, but the diagnosis was made by Rai Brukim Chander Ghosh, Bahadur, Assistant Surgeon, Ariah Hospital, from the symptoms of spasm of swallowing mability to take food and terrified expression Subsequent enquity proves that he died in his village on September 16th. It was stated by the enquirer that he was "barking like a dog before his death."

I have never heard of a case of hydrophobia with so short a period of incubation as this and in view of this, to my mind, authenticated case, the practice of waiting for a report of the examination of the brain material of the animal which but the patient, before commencing Pasteur treatment

report of the examination of the brain material of the animal which bit the patient, before commencing Pasteur treatment causes delay which is likely to prove fatal and should cease. Rabies has been so pievalent in Shahabad District during the last year that the need for action by the State to control the number and the ownership of dogs is almost duly brought to my notice. The practical difficulties should not be insurmountable

I have the honor to be,

Your most obedient servant, M H THORNELY,

MAJOR, IMS.

Owil Surgeon, Shahebad

# THERAPEUTIC NOTICES

In connection with the 17th International Congress of Medicine recently held in London, an interesting exhibition was held at the University of London

The whole of the large vestibule of the building occupied by the strikingly impressive and instructive exhibit arranged by Burroughs Wellcome & Co, who achieved the unique honour of being the only firm to receive

achieved the unique honour of being the only firm to receive
two grand prizes, the highest twilds for pharmaceutical
products, antiseptics and fine chemicals and for sera animal
substances and breteriology
It consisted of a comprehensive display of the products
issued by this house under the following headings (1)
Pharmaceutical Preparations and Fine Chemicals, (2)
Medical Equipments and First Aid, (3) Surgical Appliances
and Instruments, (4) Physiological Section, and (5) Materia
Medical Equipments and Cases adapted for

Medical Equipments and Cases adapted for various re quirements were shown and included not only travelling dispensaties of 'Tabloid' Products, Pocket Cases and Hypodermic Cases for use in every day practice, but also such equipments as the 'Soloid' Bacteriological Case, the 'Soloid' Water Analysis Case, Blood Test Case and others devised for special occasions

'Wellcome' Vaccines, Sera and Tuberculins, standardised, sterilised and in neat hermetically scaled ampoules, constituted an important and most interesting feature of this section which included also 'Tabloid Thyloid Gland (Standardised) and other animal substance products

Kymographic tracings, illustrating the action of 'Epinine,' 'Ernutin' and 'Infudin'—Pituitary Extract (Infundibular) on living organisms, were shown in the physio logical section

logical section

Messrs Burroughs, Wellcome & Co also send us specimens of "Tabloid Lymphatic Gland" (gr v)
That well known disinfectant JEYFS' CYLLIN has been

awarded the gold medal at the recent International Medical Congress The Calcutta Agents are Messrs Smith, Stan street & Co

The Pneumosan Chemische Fabril (132, Great Portland Street, London, W) send us a mass of literature in which medical men report cases showing the great use of PNEUMOSAN in case of Tuberculosis The Medical Officer, Birmingham General Dispensary, reports 76 cases so treated, of which 43 improved, 6 got worse and 27 were apparently affected. Investigating ware given three needly fore not affected Injections were given twice weekly for a period of four months

The Hoffman-La Roche Chemical Works, Ld (7, Lane, London, E C), send us specimens of their elegant and reliable digitalis preparation known as DIGALEN The literature of this preparation is large and it has been highly spoken of by many practitioners

# Service Motes

THE following Good Service Pensions were published in the

Officers of I M S are eligible for these pensions (maximum £100 per annum) for distinguished or meritorious service on the recommendation of the Government of India service on the recommendation of the Government of India Such pensions are ordinarily conferred on officers on the effective list. For further details as to these pensions see A. R. I, vol. I., paras 744—46 or Seton and Goulds' Manual of I. M. S. (p. 120).

With the approval of the Most. Hon'ble the Secretary of State for India, the Government of India are pleased to sanction the following distribution and re-allotment of Good Service Pensions of £100 per annum, to the undermentioned officers of the Indian Medical Service.—

I -In the 100m of Colonel J T B Bookey, CB, IMS, retried -

Surgeon General W McConaghy, MD (deceased), from the 16th June 1905 to the 3rd September 1905 Surgeon General Su G Bomford, KCIE, MD, from the 4th September 1905 to the 31st December 1909, and not as stated in Army Department Notification No 705, dated the 9th August 1907

II — In the room of Surgeon General Sn A S Reid, K C B,

MD, IMS, letiled

Surgeon General W R Browne, CIE, WD, from the 25th Much 1907 to the 31st March 1908, and not as stated in Army Department Notification No 921, dated the 8th November 1907

Surgeon General P H Benson, MB, from the 1st April 1908 to the 25th July 1911, and not as stated in Army Depart ment Notification No 135, dated the 12th February 1909

III -In the room of Surgeon General Sir J Fayier, Bart,

KCSI, MD, letiled Surgeon General J P Greany, M D., from the 22nd May 1907 to the 30th September 1908, and not as stated in Army Department Notification No 790, dated the 25th September

1908

Colonel D Wilkie, MB (ietned), from the 1st October 1908 to the 1st April 1909
Colonel H K McKay, CB, CIE (retned), from the 2nd April 1909 to the 2nd December 1909
Colonel R Macrae, CIE, MB (ietned), from the 3nd December 1909 to the 28th February 1910
With the approval of the Most Hon'ble the Secretary of State for India the Government of India are pleased to confer a Good Service Pension of £100 per annum on the under mentioned officer—
Error the 1st March 1910, in the soom of Colonel R Macrae.

From the 1st March 1910, in the room of Colonel R Macrae,

CIE, MB, IMS, lettred
The Hon'ble Surgeon General H W Stevenson, CSI, IMS

Commissions

Surgeon (ranking with Captain), 2nd April 1881 Surgeon (ranking with Major), 2nd April 1893 Lieutenant Colonel, 2nd April 1901 Surgeon General 11th January 1909 Rewards C S I

IV -From April 7th, 1911, in room of Surgeon General Sir H Hamilton, L C B, I M S (retired)
The Hony Surgeon General A M Orofts, CIP, I M S

#### Commussions

Surgeon lanking with Lieut, 31st Maich 1877
Surgeon lanking with Captain, 30th November 1881
Lt Colonel, 31st March 1897
Colonel, 15th October 1908
Surgeon General, 7th April 1911
Rewards and War Services Afghan War 1878 80 At Kanda

hai and with Khy bei Brigade, affairs at Judulluk medal
Egyptian Expedition 1882, action at Kassasin, battle of Tel el Kebu, medal and clasp bronze star

Zhob Valley Expedition, 1884 China, 1900 Medal, C I E

V—With the approval of the Most Hon'ble the Secretary of State for India the Government of India are pleased to confer a Good Service Pension of £100 per annum on the undermentioned officer -

FROM THE 26TH JULY 1911, IN THE ROOM OF SUROFOV GENERAL P H BENSON, MB, IMS, RITIRED The Hon'ble Surgeon General W B Bannerman, CSI, MD, IN9

#### Commissions

Surgeon (tanking with Captain), 29th September 1983 Surgeon (tanking with Major), 29th September 1895 Lieutenant Colonel, 29th September 1903 Colonel, 1st January 1911 Surgeon General, 20th July 1911 War Service and Reward—Burmese Expedition 1885 89 and

LIEUTFNANT COIONFL C DONOVAN, MD, IMB, has been advanced to the selected list, rice Lt Col R Robertson, promoted Colonel,

In being thus put on the selected list Lt Col Donovan passes over two Madras men formerly senior to him, but he goes over no less than 47 men on the Bengal and seven men on the Bombay Establishments

This of course is inevitable till the combined I M S list or general list, i.e., commissions on and after 28th January 1897 are available. The last Bengal man put on selected list, viz., Lt Col Marks has his Commission dated 31st March 1887. Lt Col Donovan's is dated 28th July 1891, or a difference in favour of Madras, against Bengal of over 4 years. Lt Col Donovan's, we need hardly say, the joint discovered with Sir Wm. Leishman, of the Leishman Donovan bodies.

with Sir Wm Leishman, of the Leishman Donovan bodies, he first pointed them out in cases of Kala Azai, whoters Leishman at an earlier date, had found them in cases of what was then called "Dumdum fever"

SURGEON COLONEL JOHN RICHARDSON, Bengal Medical Service, retried, died at Totland Isle of Wight, on 13th August 1913. He was born on 26th February 1837, educated at King's College, Aberdeen, where he became MA in 1856 and MB in 1859, and at University College, London, and after taking the LRCS and LRCP at Edinburgh, entered the IMS as Assistant Surgeon on 27th July 1859. He became Surgeon on 27th July 1871, Surgeon Major on 1st July 1873, Erigade Surgeon on 29th April 1887, and Surgeon Colonel on 19th May 1889, retiring on 19th May 1894. He entered civil employ in the Sanitary department of the N-W P and Oudh (now the UP) in 1866, as Deputy Sanitary Commissioner, and was subsequently for many years Sanitary Commissioner. In May 1889, on promotion, he was posted as AMO to the CP, and in March 1890 transferred to IGCH in the N-WP, there he was a strong and a very popular head of the Medical department of that province In 1892 he acted as Surgeon General with the Government of India, and was offered that post in succession to Surgeon General Rice, but preferred to the taken of the service of the servic in succession to Surgeon General Rice, but preferred to letire, for family leasons In 1883 he took the Sauntary science Certificate of Cambridge, then the public health diploma of that University, in 1887 he represented India at the Venice Sanitary Conference, in 1897 he served on the Indian Famine Commission, and for ten years, July 1896 to July 1906, was a member of the Army Sanitary Commission He was appointed Honorary Physician to the King on 26th September 1903 His only was service was the Bhutan expedition of 1864 65 on the North East Frontier of India, there he took part in the capture of Buxa and the Bala Pass, and in the storming of the stockades above the pass, and gained the medal for that campaign with a clasp

LIEUTENANT COLONEL ERIC HARDING S ARMAN, Madras Medical Service, retired on 1st August 1913 He was born on 13th March 1868, educated at Westminster Hospital, took the MRCS and the LRCP, London, in 1890, and entered the IMS as Surgeon-Lieutenant on 29th July 1893, be coming Surgeon Captain on 29th July 1896, Major on 30th January 1905, and Lieutenant Colonel on 30th January 1913 He was medical officer of the 99th Dekkan Infantry, formerly 6th Infantry, Haidarabad contingent, but for the past year had been on furlough in England He served in China in 1900, receiving the medal

CAPTAIN RICHARD FRANCIS CHETWIND TALBOT, IMS, retired on 24th July 1913 He was born on 5th July 1875, educated at Trinity College, Dublin, where he took the BA in 1897, the MB, BCh, BAO, and MD in 1900, and the MA in 1903, also the FRCSI in 1903, and entered the IMS as Lieutenant on 1st September 1902, becoming Captain on 1st September 1905 He was placed on temporary half pay on 24th July 1909 The Army List assigns him no war service. wai service.

MAJOR BLAKE KNOX, RAMC, sends us the following -GEORGE JOHNSTONE BUCHANAN, YB, CM (Abel),

Major Blake Knol, Ramc, sends us the following—George Johnstone Buchanan, Major, Ramc
Major, Ramc
Mayor, Ramc
Mayor, Ramc
Mayor freed and in India and at home will hear with deep regret of the death of Major George Johnstone Buchanan, aged 43 years, which took place in London on Angust 22nd, the result of a gunshot wound caused recidentally by his nephew while unloading an automatic pistol Major Buchanan was educated at Aberdeen University, where he took the triple Scottish qualification. He entered the Royal Army Medical Corps on January 30th, 1892, being promoted to the rank of Captain in 1895 and to that of Major in 1904. Out of his twenty one and a half year's service in the Army he spent seventeen and a half year's service in the Army he spent seventeen and a half year's service in the Army he spent seventeen and a half year's service in the North Wost Frontier (Than Campaign) for which he received the Medal and Clasp (Punjab Frontier 1897 8). On his second tour he went to Dum Dum and from there to manceuvres, the Delhi Dur bar of 1903 and then Bareilly. In his third tour foreign service he was stationed at Bareilly again for a short time, then Chaubittia and from there he went to Agia, where he held charge of the Station Hospital for one a year Recently he had been selected by the Director-General of the Army Medical Service for appointment as Medical Inspector of Recruits in the Eastein Command Ausone who ever had the pleasure of meeting Major Buchanan, found in him one of the kindest and most cheerful of men, full of hospitality even to strangers. His advent at a club gathering or at a regimental mess always brought a sense of good cheer and a smile to most faces for every one liked him. He never had a word of unkindness on uncharitableness for anyone and was essentially a man's man amongst men. As to qualifications his outstanding feature was his wonderful knowledge of Indian dialects, Uidu, but was appointed an examiner afterwards in this in good stead with natives and he held the Cantonment occurred

On relief by Captam J M A MacMillan, MA, MB, ChB, RCS, LRCP, IMS, on return from privilege leave, 1st grade Caul Assistant Surgeon Bipin Behari Gupta, IMA, Officiating Civil Surgeon, Hoshangabad, is reposted to the Main Dispensary, Hoshangabad

LIFUTE INT COLONIL W MOLESWORTH, INS, is due out in Madras by 14th December

MAIOR W J NIBIOCK, IMS, is due out in Madias by

CAPTAIN R D WILLOCKS, INS, has applied for 6 months' extension of study leave

CAPTAIN A C INGRAM, IMS, 18 not due out till 27th February 1915

ON leturn from leave Major J W Cornwall was posted as Director of the King Institute at Guidy

THE services of Capt J V Macdonald, I Ms, are replaced at the disposal of the Commander in Chief on return from service with the Assam Military Police in the Abor Country

On return from leave Major J W Watson, IMS., was posted as Agency Surgeon to Eastern States Rajputana

CAPTAIN H P COOK, MB FRC8 Edin, IMS., joins the Civil Medical Department, U P, for plague duty

THE undermentioned officers of the Indian Medical Service, having completed their courses at the Royal Army Medical College and at Aldershot, have been finally admitted to the service. Their commissions will bear date the 25th January 1913 -

Richard Reginald Maitland Porter, M B Robert Sweet, M B
Edward Calvert
Patrick Joseph Walsh, M B
John Robert Douglas Webb Finners Phelan Alchibald Campbell Maciae, M B Nawin Chand Kapin Aithur Hilaiy Clifton Hill Joseph Francis Holmes Naiayan Kiishna Bal Haji Suluman Gulam hussein Haji

CAPTAIN H R DUTTON, I MS, is allowed privilege leave combined with furlough for one year, viz, privilege leave for three months, under Article 260 of the Civil Service Regulations, and furlough for the remaining period, under Article 308 (b) of the Regulations, with effect from the 3rd June 1913 Capt Dutton went to Delhi in April and got enteric fever there and had to go on leave there and had to go on leave

His Excellency the Governor of Bombay in Council is pleased to appoint Major F H G Hutchinson MB, CM (Edin), DPH, IMS, on return from leave to be Sanitary Commissioner for the Government of Bombay, nice Lieute nant Colonel T E Dyson, MB, CM (Edin), DPH, IMS, receiving to multiply duty reverting to military duty

His Excellency the Governor of Bombay in Council is pleased to make the following appointments with effect from the date of retirement of Assistant Surgeon Manchershah Motabhar Vakil, LM & S

Assistant Surgeon Maganlal Motnam Modi, LM &S, to be Civil Surgeon, Karia

Assistant Surgeon Darabshah Edalji Kothavala, LM & S. to be Civil Surgeon, Broach

MILITARY ASSISTANT SURGEON G A RICHARDSON, His Buttannic Majesty's Vice Consul at Hodeida and Camaran is granted purilege leave for one month and seventeen days combined with furlough for four months and thirteen days, with effect from the 27th July 1913, under Articles 233 and 338 (a) of the Civil Service Regulations

MILITARI ASSISTANT SURGEON J A GUEIZELAR is appointed to officiate as Vice Consul at Hodeida and Camaian, with effect from the 1st August 1913, and during the absence on combined leave of Military Assistant Surgeon G A Richard son, or until further orders

CAPTAIN R H BOTT, WR, FRCS, IWS, is appointed to officiate as Professor of Surgery, Medical College, Lahore, during the absence on leave of Lieutenant Colonel E V Hugo, MD, IMS, or until further orders

THE services of Captain M J Quirke, M B, Ch B, D P H, I M S, are placed permanently at the disposal of the Government of Madias for employment in the Sanitary Department, with effect from the 13th May 1912

THE services of Captain H P Cook, I M S, an Officiating Agency Surgeon of the second class, are placed at the disposal of the Department of Education, with effect from the date on which he relinquishes charge of his duties as Civil Surgeon. Wans

Major R P Wilson, FRCS, IMS, has been transferred to be Superintendent, Campbell Medical School, Calcutta Major McGilchiist, MD, IMS, is temporarily transferred to be Civil Surgeon of Rampore Boalia, but will be placed on special duty in regard to a quinine inquiry in November

CAPTAIN O'BRIFN, INS, Civil Surgeon, Bursal, was granted 1 month's privilege leave from 4th September, and Military Assistant Surgeon S Fox was transferred temporarily from Jessore to act as Civil Surgeon of Bursal

MR J H DARWIN, Officiating Joint Magistrate, Bareilly, to hold executive charge of the Bareilly Central Jail, in addition to his other duties, as a temporary measure, rice Captain A W Howlett, I M S

LIEDTENANT COLONFL W H E WOODWRIGHT, I US, Civil Surgeon of Bareilly, to hold medical charge of the Bareilly Central Jail, in addition to his other duties, as a temporary measure, vice Captain A W Howlett, I MS

CAPTAIN J F BOYD IMS, whose services have been temporarily placed at the disposal of this Government the Government of India, Department of Education, to officiate as Superintendent, Central Jail, Bareilly

CAPTAIN H M H MELHUISH, I MS, Plague Medical Officer, Robtak, has been granted 6 months' combined leave

CAPTAIN N S SODHI, I M S, has been posted to Ludhiana as Plague Medical Officei

CAPTAIN H C KEATES, MD, IMS, 18 posted to Camp bellpur as Civil Suigeon

CAPTAIN S H LEE ABBOTT, IMS, 18 posted to Feroze pur as Civil Surgeon

CAPTAIN G E MALCOMSON, MD (Lond), IMS, has been permitted to resign the service, with effect from 2nd Septem ber 1913 Captain Malcomson entered the service on 1st February 1906 and was Medical Officer, 126th B. Infantry He went on leave out of India on 6th May 1912

Captain H Ross, 1 M s , Officiating Civil Surgeon, U  $\,{
m P}$  , was on study lerve from the 2nd May to the 18th July 1913

CAPTAIN N M WILSON, I MS, was posted to Dera Ghazi Khan as Civil Surgeon, with effect from 16th August

CAPTAIN LEE ABBOTT, I MS, was posted to Ferozepore as Civil Surgeon from 16th August

CAPTAIN C A GILL, IMS, Deputy Sanitary Commissioner, Punjab has been granted by His Majesty's Secretary of State for India a further extension of four days' furlough in continuation of the leave sunctioned in Punjab Government Notification No 259, dated the Sth March 1912

His Excellency the Governor of Bombry in Council 18 pleased to make the following appointments

Dr R D Dalal to be a Deputy Sanitary Commissioner in the vacancy of Lieutenant-Colonel H C L Arnim, DPH (Lond), IMS, lettred, and to continue to do duty as Deputy Sanitary Commissionel for the Southern Registration District

DI Jamshed D Munsiff to be a Deputy Sanitary Commissioner in the vacancy of Lieutenant-Colonel T E Dyson, MB, CM (Edin), DPH (Bir), IMS, reverting to military duty and to do duty as Deputy Sanitary Commissioner for the Gujarat Registration District

LIEUTFNANT COLONEL E R PARRY, I MS, Superinten dent, Central Jail, Midnapore, held charge of the duties of Civil Surgeon of that district, in addition to his own from the 25th July to the 18th August 1913, both days inclusive

LIEUTENANT R A BOERNEL, ISMD, Civil Surgeon, is transferred from Norkhali to Dinappui, rice Military Assistant Surgeon F H Gleeson

Second class Military Assistant Surgeon F H Gleeson, Officiating Civil Surgeon, is transferred from Dinajpui to Noakhali, iice Lieutenant R A Boermel, Is V D

CAPTAIN N S SIMPSON, I MS, Supervising Medical Officer of travelling dispensaries Lucknow, is ordered to hold civil medical charge of the Sitapur district, in addition to his other duties, vice Major E J Morgan, I MS, transferred to Ballia District

MAIOR T HUNTER, IMS, Civil Surgeon, was on study leave from the 3rd June to the 2nd August 1913

DR RAM CHAPAN, Civil Surgeon, is transferred from Ballin to Bahraich

His Excellency the Governor of Bombay in Council is pleased to make the following appointments —

Captain A J V Betts, WB (Lond) I MS, to do duty as Civil Surgeon, Nasik, vice Major C C Murison, FRCS (E), DPH (Edin and Glas), I MS, and to continue to act as Deputy Santary Commissioner, Western Registration District, in addition, pending further orders

Lieutenant Colonel S H Burnett MB, CM (Vbdn) I MS, to act as Presidency Surgeon Second District, and in medical charge of the Common Prison, the House of Correction and the Byculla Schools, in addition to his own duties, pending further orders

His Excellency the Governor of Bombay in Council is pleased to make the following appointments —

Major A F W King, FRCS (E), IMS on return from leave, to act as Health Officer of the Port of Aden and Medical Officer, European General Hospital, Aden, and Civil Administrative Medical Officer, Aden during the absence on leave of Lieutenant Colonel S E Prail, MB, 65 (Lond), IMS, or pending further orders

Captun M D A Kuieishi IMS, to continue to act as Civil Suigeon, Aden, vice Major A F W King, IMS, pending further orders

CAPTAIN J L LUNHAM, MB, BCh (RUI), IMS, has been allowed by His Majesty's Secretary of State for India an extension of furlough for nine months

The following appointments and postings are ordered in the Civil Medical Department, Burma -

Captain W S Nealor, I MS, is deputed to Dehia Dun for training in the use and management of X ray npparatus Captain

Ciptain M White, MB, RAMC, is appointed to hold colliteral chaige of the Civil Suigeoncy, Shwebo District, during the absence of Captain W S Nealor, I MS

# Motice.

SCIENTIFIC Articles and Notes of interest to the Professior in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to The Editor, The Indian Medical Gazette, c/o Messis Thacker, Spink & Colorita Co, Calcutta

Communications for the Publishers relating to Subscrip tions, Advertisements and Replints should be addressed to THE PUBLISHERS, Messis Thacker, Spink & Co., Calcutta

Annual Subscriptions to "The Indian Medical Gazette," Rs 12, including postage, in India Rs 14, including postage, abı oad

### BOOKS, REPORTS, &c., RECEIVED -

Bengai Hospitals Report

Vaccination Report

Diets of Presbyteian Hospital, New York W B Saunders Co

Lyth's Thermal Environment and Circulation Price 2s 6d Bale Sons and Danielson

and Danielson
Fitzwilliam's Operative Surgery 10s & Baillicre, Tindall & Cox
Leay's Text-book in Gonorhea 15s Baillicre, Tindall & Cox
Burnham's Hemocytes and Hamic Infections H K Lewis
D Sommerville's Aid to Public Health Baillicre, Tindall & Cox
Bohm's Massage 7s & W B Saunders Co
Bohm's Massage 7s & W B Saunders Co
Norris Gonorhea in Women 25s W B Saunders Co
Papers of St Mary's Hospital, Mayo Clinic W B Saunders Co
Drew's Manual of Invertebrate Yoology & W B Saunders Co
Major Blackham's Manual of Indian Aursing, Simla St John Ambu
Ince Association

lance Association Indian Museum Reports Bihar and Orissa Jalls Administration Report

# LETTERS, COMMUNICATIONS, &c, RECEIVED PROM -

Lt-Col Carr-White, IMS, Rajputana, Capt. J Morrison IMS Foona, It-Col Maynard, IMS, Calcutta, Major C Iane, IMS, Dar jeeling Major Delany IMS, Chapri Lt Col C (Barry, IMS, Rangoon, Major F Wall, IMS, Lansdovne, Capt H Watts, IMS, Bombay, Mily Asst Surgh Rodgers, Ralpur, Lt-Col W Lane, IMS, Nagpur, Capt W 5 Patton, IMS, Guindy, Major M Thornely, MS, Arrah

# Ortginal Articles.

# TYPHOID PARATYPHOID VACCINATION WITH MIXED VACCINES +

BY ALDO CASTELLANI, MD,

Director, Govt Clinic for Tropical Diseases, Colombo, (Ceylon)

Considering the fairly frequent occurrence of paratyphoid A and paratyphoid B in tropical regions,—at least in Ceylon and India, I have since several years advocated the use of a mixed vaccine, viz —typhoid + paratyphoid A + paratyphoid B, instead of the usual simple typhoil vaccine Notes on the subject of mixed vaccines may be found in my old publications in the Centr fur Bakteriologie (1909), in the Transactions of the Bombay Medical Congress (1909), and in the Ceylon Medical Reports, and in various recent communications

My belief in the possibility of an efficient mixed vaccine being produced was breed on the experiments I carried out in Bonn, while working under Prof Kruse, during the years 1901 and I demonstrated then (see Zert fur Hygrene 1902) that by moculating an animal with two different breteria at the same time, the blood produced agglutinins and immune bodies for both, and that provided a sufficient minimum quantity had been inoculated, the amount of agglutinins and immune bodies for each geim was about the same as in the animals inoculated with one germ I demonstrated that even moculating a nabbit with three different micro-organisms (B typhosus B+pseudo-dysentericus No 1 (Kruse) +strain of B coli communis) the amount of agglutirins and protective bodies elaborated for each germ was nearly the same as in animals respectively inoculated with one germ only the course of these experiments I was able to confirm that when the immunization is obtained by a single moculation, provided the minimum does sufficient to obtain the maximum immunization be given the amount of agglutinins and immune bodies elaborated by the inoculated animals is not in proportion to the amount of cultures injected A series of rabbits moculated with 2 c c of typhoid culture will give the same average agglutination limit and the same amount of immune bodies as a series of rabbits inoculated with 4 cc

Since 1905 I have experimented with several mixed vaccines in man, of which the principal ones are a typhoid + paratyphoid A + paratyphoid B vaccine, and typhoid + dysentery (Kruse-Shigi) + dysentery Flexner vaccine I will limit my remarks to the typhoid paratyphoid B vaccine but I may be allowed to note that anyone wishing to experiment with mixed dysentery vaccines should be careful always to use pepton-water cultures, as broth cultures of dysentery give rise to

an extremely painful infiltration at the point of inoculation

Method of preparation of the mixed typhoid paratyphoid vaccine—The mixed vaccines as prepared by me are either dead vaccines the cultures being killed in the usual way by heating at 53C or live attenuated vaccines, by heating the cultures at 50 C for an hour. During recent years I have used rather extensively both the dead mixed vaccine and the live attenuated one.

At first I used to prepare the vaccine as follows —several tubes containing 10 cc of broth each were moculated with 2 loopfuls of an agai culture of typhoid 48 hours old, other tubes with two loopfuls of paratyphoid B, and others with two loopfuls of paratyphoid A All the strains I used were non-virulent, but rich in antigen, as shown by animal experiments The moculated tubes were kept for 24 hours in the incubator at These cultures were then heated in a water bath at 55 C (dead vaccine) or 50 C (live attenuated vaccine) for an hour, they were then mixed together in certain proportions in sterile petri dishes,-two tubes (20 cc) of typhoid, one tube (10 c c) of paratyphoid B and one tube (10 cc) of paratyphoid A The mixed vaccine consisted then of two parts typhoid, one part paratyphoid A, and one part paratyphoid B to give 10 minims of the mixed vaccine at the first inoculation, and 20 or more at the second and thud At the present time the vaccine is standardized by counting the germs before mixing

The mixed vaccine I use at the present time contains per cc 500 millions typhoid, 250 millions paratyphoid B and 250 millions paratyphoid A, and is prepared either from broth cultures or emulsions in physiological salt solutions, a little lysol is added (0.2%)

Dose and method of vaccination -As already stated the mixed vaccine I now use, contains per cc 500 millions typhoid, 250 millions paratyphoid A, and 250 millions paratyphoid B I give C 6 c c the first time and double the dose a week later, and whenever possible a third dose two weeks from the first In some cases, however, I give only ½ cc the first time, and 1 cc the second Whenever possible, I give a third inoculation two weeks after the first-the dose being the same as for the second Very thin delicate individuals and young women receive a little less between 8 and 15 get  $\frac{1}{4}$  to  $\frac{1}{2}$  the adult dose inoculation of the mixed vaccine is followed by a local and general reaction which as a rule is not distinctly severer than after the moculation of simple typhoid vaccine Three or four hours after moculation, the region on the arm where the injection has been mide becomes painful and red, and fever may supervene, which, as a rule, does not last longer than 24 to 36 hours, and does not in most cases meapacitate one for work

As I do not believe that the immunization given by bacterial inoculation lasts, in man, very long,

Paper read at Ceylon Branch B M A, Oct 28, 1913

I generally advise people to be vaccinated once

every two years, or even once a year

Innocuity of the mixed typhoid-paratyphoid raccine -The mixed vaccine, whether the dead one or the attenuated live one, is innocuous, as proved by several thousand moculations done up to date in Prof. Browning, the Director of the Ceylon Gort Chemical Institute, has up to date recieved 35 moculations of mixed live vaccine at one or two weeks intervals, in addition to 29 inoculations of simple typhoid live viceine always remained in very good health

Remarks on the immunization obtained in man by the mixed vaccine — Lack of time has prevented me studying the amount of all protective substances produced in inoculated individuals. The investigation therefore has been limited to studying comparatively the amount of agglutinins produced in some individuals inoculated with mixed and simple

Two natives, David and Fernando, were moculated with mixed (dead) vaccine, 06 c.c the first time 12 cc after a week

One native, Peter, was moculated with simple typhoid vaccine (dead) 06 cc the first time 12 cc after a week

One native, Baba Singho, was inoculated with simple paratyphoid A vaccine (dead) 06 c c the first time 12 cc after a week

One native, Asson, was inoculated with simple paratyphoid B vaccine, 06 cc the first time 12 cc after a week

Two natives, A E. de Silva and D Gunesekern, were moculated with 06 cc mixed live (attenuated) vaccine, and with 12 cc after a neek

One native, Isaac, was inoculated with 0 6 cc live (attenuated) typhoid vaccine, and with 12 e.c. after a week

One native, Wellan, was inoculated with 06 cc live (attenuated) paratyphoid A vaccine, and with 12 cc after a week

One native, Karuppen, was moculated with 0 6 co live (attenuated) paratyphoid B vaccine, and with 1.2 c.c after a week

All the moculated persons were healthy young natives who volunteered for the experiment They were inoculated on the same days, first moculation taking place on the 14th June 1913, and the second on the 21st of the same month The blood of all the moculated persons investigated for presence of agglutinins regularly once a week, and the results are collected in the following table, for the compilation of which I am indebted to Mi Burgess.

From the table it will be seen that agglutinins seldom appear before the seventh day, and that the individuals inoculated with a mixed typhoid paratyphoid A paratyphoid B vaccine, produced agglutinms for all three germs, and that on the average the amount of agglutinins produced for each germ was not much smaller than in individuals inoculated with one germ only, although the latter had a much larger dose of the germ I I would wish to mention that I can lay no claim

As regards the length of time during which agglutinins were present in the moculated individuals, the results did not differ much if anything they were rather in favour of the mixed vaccines. Although of comes one cannot gauge the actual immunization obtained, by simply studying the agglutination, there can be no doubt that to a certain extent agglutination is a rough index for immunization. It seems to me that these results are decidedly in favour of the advisability of using a mixed typhoid paintyphoid A punityphoid B vaccine, in countries where all three diseases are met with

Conclusions - 1The use of the mixed trphoid + painty phoid A + painty phoid B vaccine. either the dead or the live (attenuated) one, is harmless. As there is such a general objection to the use of live vaccines I now recommend for routine use, the mixed dead vaccine, which consists of an emulsion of typhoid and pairtyphoid A and B bacilli, killed by heat (58 c) in the usual way and standardized, so that I ce contains approximately 500 millions typhoid bacille and 250 millions each of paratyphoid A and B

The moculation of such vaccine in human beings in the doses mentioned in this paper, its 0 b cc or about 10 minims, the first time, and 1.2 c c or about 20 minims, the second, -induces a production of agglutinins for all three germs, B typhosus, B paratyphosus A, and B paratyphosus B The amount of agglutinus elaborated for each germ seems to be practically the same as in individuals respectively inoculated with typhoid vaccine only, paratyphoid B vaccine only, paraphoid A vaccine only

In countries where besides typhoid there occur paratyphoid A and paratyphoid B, a mixed vaccine should, in my opinion, be used, instead of the simple typhoid vaccine. This has been done in Ceylon for the last five years, with good

I desire to express my indebtedness to Mi Burgess, Assistant Bactenologist, for the very valuable assistance rendered.

References to previous papers on mixed vaccinis

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A REVIEW OF THE TREATMENT OF DE PRESSED FRACTURES OF SKULL AT THE RANGOON GENERAL HOSPITAL, DURING THE LAST FOUR YEARS

> BY C C BARRY, LIFUT COI, INS.

Supdt , General Hospital, Rangoon

In reviewing the treatment of depressed fractures of the skull as carried out in this hospital

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to the excellent operative results that form the ground work of this paper

All the operations performed for the relief of depressed fracture of the skull have been carried out by Major Williams, Captain Crump and Captain Scott, IMS, who acted in turn as Resident Medical Officer during the four years the cases forming this series occurred

Year by year a large number of depressed fractures of the skull have been admitted into the Rangoon General Hospital, and during my lengthy connection with this institution I have on former years had to personally deal with more than 100 cases, unfortunately reliable notes of the cases for the last 4 years only are available

I have therefore selected the figures of this latter period only to see if any useful deductions can be drawn from them, and in attempting this I have made full use of some very able articles on head injuries written by Major Williams and Captain Crump in this Hospital's Annual Reports for 1910-11-12

The Staff of the Rangoon General Hospital have I think exceptional opportunities of acquiring experience in the treatment of head injuries, and more especially that variety known as Compound Depressed Fracture of the Skull

One of the chief leason is the excitable nature of the Burman and his leadiness on provocation to seize the nearest weapon at hand and lay his enemy over the head with it

The weapon used generally is either a dah, an non rod or a thick stick though on several occasions faut de mieux a bottle or brick has been pressed into service. The dah used in inflicting these injuries is almost always the variety in used for cutting jungle or chopping wood. It is like a short, broad sword, blunt at the end but heavy, a powerful weapon though fortunately its edge is usually somewhat blunted

It is then with the abovementioned weapons that a large proportion of the depressed fractures of the skull we are called on to treat are produced

In estimating the severity of these injuries it must be remembered the Burman though of a friendly and joyous temperament has a short temper and when he loses it, he does so most thoroughly and if in this condition he strikes any one he does so with his full force. The skull injuries thus inflicted are therefore extensive and serious but with suitable treatment not nearly as fatal as would at first sight be expected.

During the period from June 1909 to June 1913 altogether 123 patients were admitted with fractures of the skull of a severity that required immediate operation. Of this number 22 died giving a percentage mortality of

Of the 22 fatal cases, 16 patients never recovered consciousness and may be considered to have died of the immediate injury to the brain 4 patients died of septic encephalitis at varying periods after their admission into hospital. One patient died of tetanus occurring 8 days after the receipt of the injury and one patient died of cerebral compression, the result of intra-cranial hæmorrhage, the symptoms of which occurred some hours after admission into hospital

The operations performed were those for the elevation of depressed fracture of the skull, the wound being compound and the fracture in many cases comminuted forming thus a class of injury of great gravity

In 72 cases the immediate cause of the injury was placed on record and details as to how it was met with.

Out of these 72 cases in 48 the injuries were the result of homicidal assaults and in 24 were the result of accidents

The subjoined table gives the details —

	Total Cases	Cured	Died	Percentage Mortality
	Номісі	DAL		
Dah cut	25	23	2	8%
Wooden Club of Iron bar	23	21	2	8%
	48	44	4	
	ACCIDE	NTAL		
Falls from a height Tram Accident Railway Accident Bullet Wound Falling bag of rice ,, block of wood Horse kick	17 1 1 1 1 2 1 	10 1 0 0 0 0 2 1 	$\begin{bmatrix} 7 \\ 0 \\ 1 \\ 1 \\ 0 \\ 0 \\ \\ 10 \end{bmatrix}$	42%

Of the total number of 123 cases the dura mater was found uninjured in 81 cases, in 42 it was either incised or torn. The respective mortality was as under—

•	Total	Died	Percentage Mortality
Dura mater uninjured Dura mater torn or incised	81 42	4 18	5% 43%

In May 1899 I published in the Indian Medical Gazette a series of 26 operations performed at the Rangoon General Hospital during 1898 for the treatment of compound depressed fracture of the skull. The series included 9 deaths giving a percentage mortality of 34. This deathrate was the average we were then in the habit of expecting. The present series however gives

a mortality of 18% a considerable diminution under that of 14 years ago —

As the method of dealing with this class of head injury has not altered in any of the main features of the operation, the diminished mortality of latter years is I believe due to improved technique in the minor details and to more used In support of this view I would mention that of the 9 deaths occurring in the series of cases in 1898 only 3 were due to the immediate violence of the primary injury and no less than 6 to septic encephalitis, whereas in our later series of 123 cases only 4 deaths were due to this latter cause Nevertheless in 1898 we were fully aware of the advantages and necessity of careful asepsis and all operations and subsequent dressings were conducted under conditions that practically excluded any danger of communicating septic infection The sensis mose I feel sure from the condition of the injury on admission and I attribute the present improvement in moitality statistics very largely to the greater care that has been exercised in late years in more thoroughly cleansing the wound before any attempt is made to examine much less treat the skull muny

In this connection the practice first introduced by Major Williams when Resident Medical Officer of completely pairing the edges of the wound and cutting away all contused scalp tissue has been a most important factor, as illustrating the importance of this detail of technique, I would mention the following cases admitted into hospital within a few days of each other

Case No 1—A child suffering from a duty contused wound of the parietal region fracturing and depressing the bone. No loss of conscious or other symptoms. The wound was cleaned by prolonged migration and a decompression operation carried out. The dura mater was uninjured. The child however developed septic meningitis and died in a few days.

Case No 2—An adult male, admitted with a large contused wound of the panetal region exposing a depressed fracture of the panetal bone. Wound was full of mud and dut. The edges of the wound were freely cut away and the wound irrigated and painted with fracture rodine. The fracture was then examined and a decompression operation performed. The patient made a rapid recovery.

Carefully pairing of the edges of a contused and dirty wound is I believe an essential detail of treatment, and this proceeding as well as all other means of cleaning and disinfecting the scalp must be carried out before any attempt is made to investigate the nature of the skull injury. No subsequent difficulty has been experienced in approximating the edges of the scalp wound which as a rule heals by first intention. Dut ground into the bone is naturally difficult to deal with but painting it with fincture indine will go far to diminish septic infection, though if the nature of the fracture allows of it bone thus contaminated should be completely removed

When once then the scalp wound has been assiduously cleaned and disinfected the examination of the underlying bone must be minutely carried out and to enable this to be done thoroughly there should be no hesitation in enlarging the original wound freely I would lay stress on this point, because it not infrequently happens that we are, in hospital practice, called upon to treat severe cerebral conditions ausing from undetected compound depressed fractune of the skull Fractures which would easily have been detected had the primary scalp wound been sufficiently enlarged to allow of a thorough examination of the underlying bone following amongst other cases illustrate this point

1—A man was admitted with a contused wound of the forehead which was examined and The wound healed but no fracture detected after 8 days he complained of headache and Under chloroform the wound became drowsy was enlarged and a small depressed fracture exposed which would certainly have been discovered had the wound on admission been enlarged sufficiently to permit of digital examination of the A trephine was applied and the depressed bone elevated and removed, thus evacuating pus from a large extra dural abscess over the frontal The patient recovered but lobes of the brain after a long and dangerous illness

No 2—This patient was struck with an non rod on the forehead inflicting a small contused wound which was treated outside. Four days later he came to hospital with fever and headache. The wound was enlarged and a depressed fracture of the frontal bone exposed, a decompression operation was carried out and a small quantity of pus lying between the dura mater and the skull let out. The patient recovered

No 3—A similar case to above Patient came to hospital 2 days after receipt of a scalp wound that had been treated outside. Symptoms of commencing meningitis were present. The wound which was suppurating was enlarged and a small depressed fracture of the skull discovered. A trephine was applied and a small specula of the inner table was found to have been driven through the dura mater into the brain. The patient recovered after a long and stormy convalescence.

If then on examination of a scalp wound a depressed fracture of the skull is discovered, an operation must at once be performed for the elevation of the depressed fragments and in doing this a sufficiently large opening must be made to also ascertain the condition of the inner table of the skull For it frequently happens the inner table of the skull is extensively comminuted out of all proportion to the external depression and sharp spiculæ of bone may have been detached and driven through the dura mater into the brain substance Cases of difficulty arise when on examination it appears (1) the outer table of the skull is only indented (2) in meised wounds of the skull when the whole thickness of the skull does not appear to be cut through

In the first case I am strongly of opinion that trephining is the only really safe course. Even though the depression of the skull is small it is not possible to tell what injury the inner table may have sustained nor whether the brain substance below may not have been lacerated by specula of bone from the inner table. The removal of a crown of bone is unaccompanied by any practical risk and the consequences of neglecting such operative measures may be disastrous.

In illustration of this point I mention the following cases —

No 1 -A man was admitted with a contused wound 1" long over the right frontal bone with a very slight depression of the outer table There was also a larger wound over the occupital mea only skin deep The frontal wound healed quickly, the occipital wound more slowly but the patient was discharged emed after a stay of 16 days in hospital He had no head symptoms and his temperature was normal throughout his stay in hospital Five days later his dead body was brought to hospital Post-mortem -The inner table of the skull was found to have been extensively splintered beneath the frontal depression The dura mater was lacerated and a large abscess containing specula of inner table had formed in the frontal lobe of the brain

No 2—A patient was admitted with a contused suppurating wound of the forehead of 2 days standing. At one angle of the wound the skull was exposed and the outer table appeared slightly depressed. No operation was performed, the man walked about and appeared in good health. On the 4th day he had a rigor and rapidly became unconscious, the seat of the injury was trephined, the inner table was found to be splintered and a large effusion of blood had taken place between the skull and the dura Pure culture of a streptococcus were obtained from the blood clot.

With incised wounds of the skull the consideration of the question of trephining is somewhat different since a sharp weapon that cuts into the skull is not so likely to produce splintering of the inner table. In cases of this nature

The skull injuries may, for the purpose of treatment, be subdivided into, three classes —

- wounds in which the outer table of the skull is cut into, but not completely divided
- m Wounds dividing the outer table and cutting into the middle or cancellous table of the skull-bone

wounds completely dividing the skull

It is first of great importance to estimate whether the blow was received at right angles to the curvature of the skull or not. Many blows, though struck vertically on coming in contact with the skull, glance sideways and whether this has taken place or not can almost always be determined by a careful examination of the wound itself

Should the blow be a glancing one and should there be no grave head symptoms pointing to compression or severe injury of the brain substance, the wounds in Classes I and II as a rule require no operation and may be treated as ordinary scalp wounds exposing the bone of the skull Should, however, the direction of the wound be at right angles to the curvature of the skull wounds in Class I only may be left alone

Those, however, in Class II now require more thorough treatment, for there is almost invariably fracture and communication of the inner table of the skull and as a consequence not infrequently laceration of the brain substance beneath

In wounds falling into Class III, trephining should always be carried out whether blow happens to have been actually vertical to the curvature of the skull or not as it is practically certain the inner table has been splintered

These views have been arrived at after performance of a considerable number of post-mortems on police cases and as the result of many experiments on the dead body. The following case is illustrative of the points put forward above

A patient walked to the hospital with a dah cut 3" long on the vertex of the skull, he was weak from loss of blood but had no head symptoms. The cut extended through the outer table of the skull into the cancellous layer and the blow appeared to have been given at right angles to the curvature of the skull. He was trephined and the length of the wound explored by removal of skull with bone cutting forceps. The inner table was extensively comminuted and a large piece of it driven through the dura materiate the brain. This was removed and to patient made a rapid and uneventful recovery.

It is at times surprising how recovery follows head injuries of the utmost severity. However desperate the injury to the skull and brain no case need be despaned of, the same care and attention must be given to the cleansing of the wound and the technique of the operation as if the injury was comparatively slight and the prognosis good. The majority of the depressed fractures of the skull admitted into the Rangoon General Hospital are necessarily of considerable gravity but the following cases show what dangerous conditions may be present and yet recovery take place

### SEVERITY OF PRIMARY INJURY.

No 1—A patient was admitted with head injury due to a Railway accident. He was comatose and the front of the skull was smashed into several pieces while large quantities of disorganized brain substance had to be removed. He remained unconscious for 4 days but eventually recovered.

No 2—A man admitted with night panetal bone smashed in the result of a blow with a sleigh hammer considerable loss of pulped brain substance, conscious but with complete paralysis of left side, herma cerebii formed, gradual recovery, regained power first in left leg. Left hospital in good condition except for slight paresis of left hand.

#### SEPTIC ENCEPHALITIS

No 1—Patient admitted with depressed fracture of right parietal bone, wounds dirty, dura mater intact. Did well for 8 days, then convulsions with high temperature, dura mater incised and much pus evacuated, meningitis, herma cerebir, convulsions frequent for 5 days, eventually made complete recovery

No 2—Patient admitted with depressed fracture of right parietal bone, suppurating, dura mater and brain punctured by two speculæ of bone Rational but with paralysis of left

Decompression operation Second day paralysis of left leg. Fourth day incontinence of fæces and retention of urine. In this condition 10 days with high temperature, slow recovery of power, first over splinsters, then left leg Left hospital in good health with paresis of left hand.

### LARGE EXELY OF INJURY

No 1—Patient admitted with dah cut of vertex of skill extending from outer side of right orbit to left temporal ridge, the dura mater and brain were deeply incised and hæmorrhage was considerable. Patient made a good recovery.

No 2—Patient admitted with semi-circular dah cut of the veitex of the skull 6 inches long dividing the dura mater and cutting into brain substance with much hamorrhage. Patient made

good recovery and left hospital in 21 days cured. These cases show how severe a head injury may be and yet recovery take place if unienitting and careful treatment is persevered in a proportion of success will be obtained even in cases apparently hopeless.

Though I do not propose to go into any description of the set operation for dealing with depressed fractures of the skull there are a few points on which the experience of this hospital may be useful

As regards intra-cramal harmonthage, the harmonthage may be venous or arterial, it is usually venous. As a first step the blood clot already formed must be thoroughly removed, and in doing this Saline mingation used very freely and persistently has been found a most useful method, it will then be possible to estimate whether the bleeding is of arterial or venous origin.

If after removing the blood clot it is found by careful inspection all bleeding has ceased, no further operative measures are necessary, if the brain compressed by the effusion of blood expands leaving no cavity between the bony skull and the brain substance, the scalp wound may be then closed without drainage, if however the brain substance does not satisfactorily re-expand and a pocket is thus left between it and the skull bones, a gauze drain should be inserted for 24 hours

Should it be found after removing the blood clot hemonhage is still in progress measures If the character of must be taken to control it the blood stream shows the bleeding to be of arternal origin the wounded artery must be exposed and ligatured, and to do this efficiently it is often necessary to remove further portions of There should be no hesitation in the skull performing this measure as unless the bleeding point is properly exposed attempts at ligation of the wounded artery will be meffective and by perhaps tearing the dura mater will often make matter, worse The artery affected must be fully exposed and tied both above and below the bleeding point

In three patients out of the present series ligature of one of the meningeal arterics was found necessary and the following case illustrates the necessity of thoroughly exposing the bleeding

A patient was brought to hospital with a fracture of the skull over the right parietal emmence, semi-comatose and with paralysis of the left arm. He was treplined and a large extra dural clot removed. Slight oozing persisted which it was thought was stopped by a gauze plug. Three hours later he was found to be bleeding freely from the scalp wound. The wound was opened but it was discovered a large extra dural clot had again formed and that arterial blood was coming away freely. The skull was now cut away

almost to the base of the brain and a large branch of the middle meningeal artery was found toin Two ligatures were passed through the dura mater under the artery, so as to thus include The patient made a good the bleeding point recovery though at the time of the operation his condition from loss of blood was serious The artery had been punctured by the end of a loose fragment of inner table far away from the original seat of injury

Should the hæmornhage be venous it can usually be controlled by efficient gauze plugging Cases of recurrent hæmorrhage have occurred and have caused anxiety but the final results have The removal of the gauze plug been successful at the first dressing is a time of anxiety for alarming hæmorihage may then occur case such hæmonhage recuned four times and though the patient was anæsthetized, no bleeding point could be located, nevertheless he made a good recovery

Though it is a matter of difficulty to decide whether to seek for the source of serious venous hæmonhage or to plug without attempting to gain more immediate control, it has proved a more successful course to simply plug with gauze and be prepared for subsequent bleeding at the

fust diessing

It is very difficult to locate the exact source of venous hæmorrhage and attempts to search for the bleeding points are very apt to increase the hæmonhage, even if found, the ligature of the vein or sinus is at times impossible For these reasons I believe gauze plugging in spite of its disadvantages is the best practice

Plugging with gauze was resorted to in 15 cases for venous hemorrhage of varying degree these patients, two died, though not from hemorthage only, both patients having sustained in addition serious laceration of the brain sub-

In trephining after removal of the crown of bone and exposure of the dura mater in some cases the question of incising this membrane will have to be considered Opening the dura mater has serious disadvantages, it is extremely likely to give rise to herma cerebii and also to merease the danger, septic encephilitis in admitted with duty scalp wounds Lather of these complications are so serious that any measure favouring their onset should be avoided

It is generally considered that should the brain substance bulge pulseless into the trephine opening an indication for moising the dura mater is pre-ent. This bulging and pulseless condition of the brain substance is, however frequently due to a localized cedema of the brain subjacent to the site of original injury ce lema may however spread and by raising the intra-cramal pressure aggiavate such symp-

toms as have been already produced by the Nevertheless I local bruising of the brain would be in no huily to incise the dura mater unless the symptoms of brain pressure were The case may be watched from 24-36 urgent hours when should the brain symptoms be mainly due to cedema considerable improvement will have taken place

The following cases illustrate the above mentioned condition -

No 1 —A patient admitted with scalp wound of right parietal region, there was marked paresis of left aim and leg but no other head symptoms. A linear fracture of the skull was found enlarging the scalp wound, and he was trephined on the diagnosis of a sub-dural hemorrhage dura mater bulged, pulseless into the trephine hole and was meised, a large quantity of clear cerebro spinal fluid escaped and a gauze drain The symptoms of paresis disapwas inserted peared in 34 hours and patient made a good No harm resulted in this case but the incising of the duia mater was unnecessary

No 2 -A woman was brought to the hospital comatose six days after a blow on the head in She had right hemithe right parietal region plegia, slow pulse and high temperature was trephined over the seat of the injury under the idea she had a cerebial abscess The dura mater bulged and was pulseless, the membiane was excised and the biain exploied Nothing was formed but a herma cerebii developed under the eyes of the operator and she left the table with a herma the size of an hen's egg morning the herma cerebii was the size of a fist and the quantity of serous fluid exuding necessitated frequent change of dressings The herma continued to increase in size and the patient died m 24 hours Post-mortem—nothing was found to account for her symptoms The dura mater was incised rightly on account of the ingency of the symptoms but it did no good

No 3 -This patient came to hospital five days after an injury on the left parietal region. There was aphasia, paralysis of the light aim and right facial palsy A small depressed fracture was found, a crown of bone was removed and the fracture elevated, dura mater bulged and was pulseless The membrane however was not incised a gauze drain being inserted, considerable serous discharge took place daily into the diessings and after four days the patient was able to speak nationally Complete recovery took place

No 4 -The patient was admitted with an enormous puffy tumour of the left side of the head and in a state of intense cerebial irritation. Four days later paralysis of the right aim was noticed and he was trephined No fracture of the skull was found but there was marked intracianial tension The dura mater was not incised

but a gauze drain inserted, much serous discharge appeared on the dressings and the paralytic symptoms rapidly cleared up. The patient made a good recovery. It appears that should cedema of the brain only be present sufficient temporary relief may be given by removing a crown of bone and inserting a gauze drain, the proceeding is devoid of danger and unless the operator is convinced subdural hæmorrhage is present the dura mater should not be incised at the primary operation. If no improvement results in 24-36 hours the dura mater can be incised later and the brain explored.

When a decompression operation has been completed there is some difference of opinion as to whether the portions of the bony skull removed should be replaced or not The general mactice in this hospital has been agamst this measure chiefly owing to the nature of the patient's wounds and the consequent infected condition of the bone If the bone or the wound itself is infected any attempt at bone replacements will almost certainly result in Such attempts should be limited to decompression operations that can be carried out through the uninjured scalp and in which the operation wound can be kept nigidly aseptic The bone when removed should be kept in warm saline solution whilst the operation is in Even with these precautions I have seen several failures and am not personally in favour of any attempt to replace bone once completely removed from the periosteum

Herma Cerebii is a complication of great gravity and a difficult one to treat The hermated mass is as a rule composed largely of granulation tissue with very little true cerebral tissue and the treatment lies chiefly between shaving off the herma and applying pressure with a lead plate or simply exerting gently pressure on the whole hermated mass by means of wool The herma is caused by the increased intracranial pressure arising either from the immediate damage to the brain substance or if occurring later by inflammatory changes in the brain When the intra-cianial tension becomes more normal it is to be hoped the hernia will subside Better results have been obtained by also simply exerting moderate pressure on the hermated mass by dressings, than by first shaving of the herma and then applying localized pressure over the aperture in the skull

The prognosis of a head injury is a matter of much difficulty owing to the uncertainty as to what damage the brain itself may have undergone. In depressed fractures of the skull simple or compound since a decompression operation is I believe always indicated, information of a slightly more certain nature is obtainable, but even under these circumstances the possible injury to brain cells is largely a matter of

conjecture Any prognosis must therefore be most guarded

Relations and friends however are so anxious to know what a patient's prospects of recovery may be that any tentative deductions drawn from a more detailed analysis of the present series of cases may prove helpful

Of 123 patients admitted into hospital with compound depressed fractures of the skull of varying severity, 23 died giving a percentage mortality of 18 per cent. Of this number 19 patients were admitted with lasting and complete unconsciousness of whom 16 died or a mortality of 85 per cent.

Of 9 cases admitted with motor paralysis but no loss of consciousness one died a mortality of 12 per cent. The patient who died however did so of septic meningitis some days after receipt of the injury and post-mortan the fracture was found to have opened up the nasal cavity.

Of 95 cases with only temporary loss of consciousness 5 died, a death-rate of 5 per cent

It may, therefore, be taken I think lasting and complete unconsciousness is a symptom of very grave import

Another point of consideration is whether the dura mater has been lacerated or not

Of 81 cases in which the dura mater was found intact 4 died giving a death-rate of 5 per cent in 42 cases where the skull injury lacerated the dura mater 18 died or 43 per cent

Laceration of the dura mater as might be expected points to serious brain injury

With a view to ascertaining if a depressed fracture of any one portion of the vault of the skull could be considered of greater gravity than another, the following table has been compiled from cases in which the injury was single and limited to a definite area

									===	=	=	==
		RONE			покт Воле		AND	ncric Pari Pari Bone	etai	li	OCC IT OV	١L
	Total	Cured	Died	Total	Cured	Dicd	Total	Cured	Died	Totil	Cured	Died
Slight symp toms on ad mission Motor para lysis but	27	26	1	13	13		4	3	1	3	3	
no loss of conscious ness Complete un	7	7		1		1	1	1				
Consci o ii s ness	5	1	4	- }	1	2	1		1			۱ ا
	39	34	, 5	17	14	3	6	4	2	3	3	L

Though no very definite conclusions can be drawn from this table, it appears the force of the

injury as instanced by the presence of lasting and complete unconsciousness is the really determining factor of the mortality, rather than the exact area of the skull injured, as long as the injury was not of overwhelming violence the death-rate was small and vice versa when the force of the blow was so great as to produce lasting loss of consciousness the mortality became enormous. As might be expected injury over the parietal bones produced marked motor paralysis but as long as this symptom was unaccompanied by lasting unconsciousness the prognosis was favourable

An interesting point is the difference in mortality of depressed fractures due to homicidal assaults and of those due to accidents

The following table has been compiled from cases in which the actual cause of the injury was accurately known —

		Total	Cured	Died	Percent- nge Morta lity
Homicidal Assinlts	{ Dah wounds incised Club	25 23	23 21	2 2	}8%
	Tram acci dent Railway ac	1	1		1
	cident Bullet	1	}	1	} }
	wound	1		1	
Accidental Cruses	Kick from horse Falling bag	1	1		42%
	of rice Falling	1		1	{}
	block of wood Falls from a	2	2		
	height	17	10	7	<u> </u>
		72	58	14	

One is at once struck by the comparative mildness of blows given by human agency and this is all the more surprising when in considering the mortality of this class of injury it is remembered that the great majority of these blows were delivered with intent to kill and were inflicted by dangerous weapons

Considered then with such other points as the extent of the fracture, the physique and habits of the patient, the cleanliness or otherwise of the wound and the length of time intervening between the infliction of the injury and the possibility of obtaining surgical aid, the following conditions may be considered hopeful

Absence of or merely passing loss of conscious-

Dura mater intact
Blow delivered by human force and vice versa
Lasting and complete unconsciousness
Laceration of dura mater.

Injury due to severe accidents

will all point to great severity of injury and the outlook will be of the utmost gravity

It need hardly be added that any fracture involving the base of the skull at once renders the prognosis of any injury much less hopeful

A most interesting point is what effect such severe injuries as compound depressed fractures of the skull may have on the patient's subsequent If these injuries are left unmental condition treated even if iecovery take place we know much subsequent trouble may be anticipated. If however effective surgical measures have been carried out how far is the recovery complete. Unfortunately the evidence obtainable is mainly negative, the vast majority of the patients leave hospital apparently completely recovered and we do The fact that we do not not hear of them again hear of them again may to a certain extent be taken as proof they have suffered no permanent The patients treated as a rule brain injury fully appreciate the care and attention bestowed on them in hospital and some at any rate would return if they had any serious disable-Again a large majority of these patients are the victims of homicidal assaults and as such appear later in the Police Courts when the aftereffects of the injuries are to a certain extent estimated, on such occasions it is rare to find the patient complaining of any ill after-effects It is also very uncommon to find at the Rangoon Lunatic Asylum any inmate whose loss of mental power can be traced to a depressed fracture of the skull Though such negative evidence as this is necessarily unconvincing, taking it in conjunction with a few cases whose after history has been capable of verification I have come to the conclusion, a large proportion of the patients suffer little if any inconveniences in after life from these skull injuries serious though they appear at the time

# NOTES ON SOME INTERESTING CASES,

BY L P STEPHEN, MB, FR.C.SE, DT M.,
MAJOR, IMS

Case 1 — Name Mahadeo Laxman, caste Hindu, age 35 years

History of dyspepsia of 5 years standing and symptoms pointing to the probability of previous gastric ulceration. For the last four months he has had persistent vomiting, sometimes four or five times a day. He says he is willing to have anything done to relieve his present wretched state. He was so weak when he entered the hospital that he had to be supported by two men and was extremely emacrated.

On Examination —The abdomen was retracted There was no doubt as to the diagnosis, for on stimulation by the finger in the epigastric region the whole stomach rose up about an inch above the general level of the abdominal wall and

strong peristaltic contractions were plainly visible passing from the cardine to the pyloric end of stomach. No guigling accompanied these contractions. Stricture of pylorus was diagnosed probably of benign nature as no tumour mass

could be felt over the pyloric region

Operation —Abdomen was opened above the The stomach presented in the wound, it was not greatly dilated but the walls felt twice as thick as normal. The pylorus was so constricted that the little finger could not be invaginated into the opening This condition was seen to be due to cicatifical contraction following on previous ulceration A posterioi gastro-enterostomy was performed in the usual manner, and as there were no proper clamps available, the gut and stomach were kept in position for suture by the fingers of the assistant A three inch opening was made between the stomach and jejunum and the operation rapidly completed Owing to the weak and emaciated condition of the patient rectal saline injections were given at the end of the operation and throughout the day For the next two days the patient was fed by nutrient enemata and was given sterile water by mouth The wound healed by first intention, and recovery was perfect in ten days The patient has developed a voiacious appetite and all his former symptoms have completely disappeared He can now eat anything and is rapidly putting on flesh again

Case II - Name Laxumi Naik, caste Hindu,

age 45 years.

History of rapidly increasing enlargement of abdomen for the last one year accompanied by suppression of menses, which made her imagine

that she was pregnant

Examination—She was extremely emaciated, in striking contrast with her enormous abdomen. The abdomen is uniformly enlarged and measures at the umbilicus 42'', from the umbilicus to the right auterior superior rhac spine 10'' and from umbilicus to left anterior superior rhac spine  $11\frac{1}{2}''$ . The abdomen is very tense and an abdominal thrill is easily made out. Diagnosis of ovarian cyst is made.

Operation —An incision was made from umbilicus to the pubis through the abdominal wall and the peritoneum The skin area was then completely shut off from the wound by towels The prefixed with Moynihan's towel clips senting bulging cyst was then incised and three or four pints of amber coloured fluid were evacuated, the rest of the cyst was filled with myxomatous and yellowish-green substance of the consistence of very thick glue, which was with difficulty removed by the hands, on account of its ropy and tenaceous consistence The cyst was then separated from its adhesions to the peritoneum and large gut. It was noted that there was a large number of small daughter cysts in the cavity of the parent cyst and also outside it, where adhesions had formed to the surroundings The pedicle of the cyst was seen to alise from the left ovary and tube. The pedicle was transfixed by pedical needle and was ligatured in the usual manner and the cyst, ovary and tube removed. The raw surface was then covered with peritoneum sutured over it. The total weight of cyst and its contents was 35 lbs. The wound healed by first intention and the patient made and uninterrupted recovery.

Case III - Name Bhagabala, Native Christian,

age 20 years

Admitted into the hospital for fever and homoptysis. A small patch of consolidation of the lung with moist rales was made out on the right side behind, at the upper border of the middle lobe.

Progress of case—Fever mostly of remittent type ranging from 100 to 103 Dyspucea became marked and a dry pleuritic rub was made out over the diseased portion of the lung began to increase upwards behind, accompanied by loss of breath sounds, but the ordinary vestcular murmur was present below, although fainter than that on the other side Empyema was thought of, and several attempts were made to confirm this diagnosis by exploratory punctures on various occasions, but no pus was ever withdrawn I had occasion to leave the station for a few days, and on my return I found the following -Complete dullness and absence of breath sounds were made out over the upper part of the right chest both behind and in front The right chest was visibly enlarged and did not move on inspira-A faint vesicular murmui was made on the lower half of the chest The temperature was still remittent although less so than previously The respirations were over forty per minute, pulse was rapid, 130 per minute and feeble and the patient was very distressed in breathing right side of the face and right aim were swollen and there was difficulty in swallowing It was evident that there was something in the right chest pressing on the treachea, osophagus and Patient was put on the 11ght innominate vein the table and a dozen punctures by the needle were made over the dull area but again no pus However in view of the precarious was found condition of the patient I decided to open the chest and relieve the pressure, an incision was made in the right mid-axillary line, 3" of the 3id and 4th 11bs were removed. The pleura was incised through the upper part of the wound and I was astonished when thin pus buist out, and On exploration it was over a pint was evacuated found that the empyema was confined to the upper part of the chest, the lower part having apparently been shut off by previous adhesions The moral of this case is for suigeons to realise that it is essential to explore the chest with a large perfectly acting syringe or better still by an aspirator, in oider that a correct diagnosis for fluid in the chest may be arrived In the above case the syringes were tested before use and were found to be fairly efficient

in sucking up lotion, but apparently were not capable of withdrawing pus

Case IV—Mis P B., caste Hindu, age 35 years The history she gave was that about six years ago she consulted a well-known ophthalmic surgeon about her left eye He said there was a cataract which was not ripe for operation. According to her statement the vision of the left eye gradually disappeared, but about a year ago the vision again began to improve and now it was fairly clear. She is positive that no operation was ever performed on it

Present Examination —There is well developed catalact in the right eye Left-eye—The pupil is clear. The miss lies in a flat plane and is tremulous. There is no sign of an operation scar on the globe. The pupil having been dilated, a condition of Aphakia is made out. By ophthalmoscopic examination under good illumination there is just a trace of the folded and collapsed lens capsule to be made out, otherwise the media are perfectly clear. A+10 D lens corrects the refraction. There would appear to be no doubt that this is one of the rare cases of spontaneous cure of catalact without operation.

# DISEASE "CARRIERS" IN OUR ARMY IN INDIA.

BY P HEHIR, COLONEL, IMS,

Assistant Director of Medical Services, Poona

THE fact that man and insects are "carriers" of specific infective disease is now recognised as one of the most important data in epidemiology of that class of diseases This fact is of primary significance to all military sanitarians in our Indian Empire With the exception of venereal disease, the group of specific infective diseases embraces practically all the maladies that seriously affect the admission-rate and mortality of our troops, British and Indian From our previous knowledge and experience of the epidemiology of these diseases, we were not greatly surprised when it was definitely proved that in several of these diseases patients continued to discharge countless numbers of the causative germs in a virulent form for some time It aroused our astonishment, however, when bacteriologists proved to us that the germs of specific infective disease may exist in apparently healthy persons who have never suffered from the disease, and are immune to it, and through whom these germs may be disseminated amongst communities There is no necessity to recount here the many outbreaks of infectious disease that have been started by "carriers"—they are scattered over the medical literature of the civilised world of the last six or seven years The tôle of insects in the transmitting disease from man to man, and from animals to man, is widening year by year, until

we are beginning to suspect that they are probably concerned in the dissemination of many other infective diseases of which our etrological knowledge is as yet in its infancy or altogether absent. While these discoveries have considerably extended the scope of our preventive measures and in many cases given definiteness to them, they have made the work of sanitarians more exacting by the difficulty he finds in ascertaining who his human "carriers" are, and in the case of the insect "carriers," where they breed and how they are to be got rid of

It would perhaps be worth while to consider the part played by the human "carrier" in connection with the spread of certain diseases in our barracks in India. No diseases demonstrate this more positively than the colon-enteric-dysen-

tery group and cholera

# ENTERIC AND PARA-TYPHOID CARRIERS.

There is no longer any doubt regarding the perpetuation of enteric fever and paratyphoid fever by carriers—by persons who are reservous of their bacilli and discharge them carriers we know are of two classes—those who, after an attack of typhoid fever, continue to harbour the bacilli in their gall-bladders, urinary bladders (or elsewhere), and discharge them with their fæces or urine, and those who have lived in intimate contact with the infected, or have lived under circumstances rendering infection possible, and harbour the bacilli without themselves having suffered from the disease or a recognisable attack of it Lieutenant-Colonel Sir David Semple, RAMC, states that those who harbour infection may be divided into four classes -Persons suffering from enteric fever diagnosed and treated as such, persons suffering from enteric fever but not diagnosed or treated as such, including attacks in which the disease was not suspected and possibly many cases diagnosed and treated as ordinary diarrhæa, or malaria, pyrexia of uncertain origin, etc, convalescent enteric patients who have become bacilli carriers, and healthy persons who have never so far as we know passed through an attack of the disease, such as attendants on enteric fever cases, or persons who have been subjected to the same opportunities of infection as those who have contracted the diseaseprobably temporary harbourers of infection, but not infected in the ordinary sense of the term The latter three classes are real propagators of the disease in India The first is the least dangerous because known and defensive operations against them are taken

Infection by contact may be (a) immediate from a sick person, especially when the disease is not diagnosed, or (b) mediate from articles contaminated by him Infection may occur from early and ambulant cases, from mild or early cases in hospital prior to their diagnosis as enteric, and from some of those who escape diagnosis altogether, by the excreta of con-

valescents after they are discharged from hospital, from men who are acting as bacilli carriers and by infection from badly placed and defectively worked latrine trenches number of enteric and para-typhoid fever cases are not admitted for several days after the disease has began, during which time they are acting as disseminators of the disease much evidence to support the view that these men are at least one of the most frequent sources of typhoid infection This points to the uigent necessity of insisting on all cases of even trifling fever reporting sick at once, and of the necessity of isolating these cases until the presence of typhoid fever has been disproved Early diagnosis by blood cultures in these cases is of paramount importance in the matter of prevention

The greatest danger is associated with the ambulatory cases, the unrecognised and unrecognisable contacts, and the concealed carriers and one is confident that these cases play a very great part in the dissemination and perpetuation of the diseases under reference not only in military life in the tropics but throughout tropical communi-We now also recognise that these carriers are of the acute kind, who harbour the bacilli for a few weeks only, and chronic, who continue to excrete them for months or even years dication is to isolate all cases of these diseases and destroy their excreta ar soon as they are discharged until the bacilli are no longer discoverable in the dejecta, and further to isolate all contacts and examine their excreta, not setting them free until their dejecta are proved to be sterile as regards enteric and para-typhoid bacilli The difficulties connected with the carrying out of these measures are undoubtedly great, but every effort should be made to overcome them The good effects resulting from isolating chronic carriers in the British Army in India has been quite phenomenal The main characteristics in the enteric fever of the last few years in our European troops in India have been—the complete absence of any epidemic outbreak, but rather the occurrence of more or less isolated cases scattered over a large number of units and stations, and when occurring in a unit the cases are from different companies or troops, and the absence of any evidence to show that water, milk or other articles of food gave rise to the disease

These remarks apply also to para-typhoid fever, the prevalence of which appears to be increasing while that of true enteric is decreasing Early and accurate diagnosis is of paramount importance in both enteric and para-typhoid fever, this is our only means of determining their relative pievalence. In 1909, para-typhoid fever was considered to be rare amongst our European troops, in 1910 there were 39 cases, and in 1911 there were 104 cases. "The incriminating factor in all these cases appears to have been the initial piesence of an undetected and unsuspected infected person, indicating that in this particular disease man himself is the most dangerous factor."

(Colonel R H Firth, A M S, in the Royal Army Medical Journal, 1912) Whether the more frequent source of infection is by acute carriers or unrecognised cases has not yet been determined. One has personally no doubt that many of the cases formerly diagnosed as enteric fever, were in reality cases of para-typhoid fever.

In India we have opened two convalescent depôts (at Nami Tal and in the Himalayas, and Wellington in the Nilgheiries), for the isolation of all cases of recovered enteric fever and paratyphoid fever Since these depôts were opened in 1908-9, 1,229 cases of enteric fever have passed through them, amongst whom there were 26 carriers, 13 were acute carriers, 13 chronic During the same period 124 cases of recovered para-typhord fever passed through the depôts, of whom 17 were temporary carriers and 1 a con-These facts indicate that time stant carmer enteric yields 2 per cent of carriers, and paratyphoid 14 per cent, of which 1 per cent are potentially dangerous for long periods of time We are forced to the conclusion therefore that in para-typhoid fever the dangers to be feared with undetected and recovered cases are considerably greater than in enteric fever, and it behaves us to leave no means untited to detect these cases as the dominant factor in the pievalence of spread of these infectious disease is man himself

There is no doubt that in the past these two diseases were diagnosed as one and the same, but the necessity for differentiating them is shown by their distinct etiology, the great disparity in the case mortality, and the fact that the one does not in any way protect against the other-antienteric inoculation has no effect on the prevalence of para-typhoid fever Taking the enteric and para-typhoid rates together in 1911 there were 274 cases with 24 deaths, or an admission rate of 38 per 1,000 and a death-rate of 033 per 1,000, ten years ago the admission rate was 128 per 1,000, and the death-rate 332 per 1,000 During the last three years we have in our statistics differentiated enteric fever from para-In 1911 there were 104 cases of the latter disease, with 2 deaths-these cases were all diagnosed by direct blood cultures, in 103 cases Bacillus paratyphosus A was recovered, and in 1 Bacillus paratyphosus B. In none of the cases could the source of infection be traced to water, milk, or any particular article of food

Of 95 recovered enteric fever cases sent to the Naini Tal Depôt in 1911 no carrier was discovered, but in the 85 para-typhoid fever cases there were 12 carriers. The existence of these depôts has not caused a single initial case of infection amongst the healthy troops doing duty at the depôts.

Cases of para-typhoid fever as we meet with them in India and Burma are mainly due to Bacillus paratyphosus A, they are clinically like mild enteric, although they occasionally prove fatal Para-typhoid fever due to Bacillus paratyphosus B occurs but seldom Both give specific

agglutination tests and both are to be found in the peripheral blood All military medical officers in the tropics should thoroughly recognise the importance of early blood culture in pyrexial conditions of an unknown or undragnosed nature, and carry it out Without it there will continue to be confusion in the diagnosis of the fevers of unknown origin, and we will remain in ignorance regarding the exact prevalence of enteric and para-typhoid fever

Notwithstanding the frequency of the occurience of enteric fever there are few diseases in which mistakes in the diagnosis are more common when the clinical course alone is relied upon In India some of the most characteristic symptoms are often absent (eg, rash or drarrhoa), and the nature of the disease is sometimes very

ındefinite

Finding the bacillus in cultivations from the abstracted blood of the patient is the most immediate way we can diagnose the disease practically every large and most of the small military stations of our Indian Empire, it is now possible to make a diagnosis of enteric and paratyphoid fever within the first few days of the disease in these stations tubes of sterile ox-gall or other medium are always kept ready for moculation The technique of this method of diagnosis has now been simplified and all the difficulties of carrying it out eliminated Indeed one is disposed to recommend its adoption in all European troops in the tropics in every case of pyrexia where the diagnosis is uncertain and the man has not pieviously suffered from enteric fever

The statistics in connection with our Indian troops show that there is a progressively increasing number of admissions for enteric fever yearly-in 1902 there were only 50 cases, in 1910 there were 329 cases Opinions differ as to the cause of this increase, but most authorities incline to the belief that the explanation lies in the more accurate diagnosis of cases in which the leading clininal phenomenon is pyrexia, that the disease was in former years in existence but unrecognised as such There is certainly no doubt that some of the cases formerly called "remittent fever" were enteric fever Military medical officers in several tropical countries have assured me that enteric fever prevails in the indigenous troops Up to date the disease has not occurred in an epidemic form amongst our Indian troops The possible tôle of "carriers" should not be lost sight of Pieventive measures employed in enteric and para-typhoid fevers under a clear understanding of the probable ways of conveyance of these diseases, as a rule, ensure the safety of others against infection, nevertheless in conditions of close association with the infected, the measures adopted are sometimes meffectual, and when the present-day recognised preventive mersures are carried out in a faulty way the direct transmission of the disease from person to person is by no means uncommon The special and general measures in preventing the dissemi-

nation of enteric and para-typhoid fever are-a pure water-supply, a food supply, free from specific contamination, a pure milk supply, disposal of excreta in such a way that all germs contained therein are destroyed speedily as possible, the reduction of flies to a minimum, and the isolation of all persons acting as "carriers" of these diseases. The men we have constantly to watch are the ambulatory cases, those who have had the disease diagnosed and not diagnosed, who continue to shed its geims continuously or periodically for a shorter or longer time, healthy "contacts" who harbour the germs and set them free, and men who have the disease in the early stage, before the definite symptoms have developed This last class may have carried the gerins of the disease for considerable periods until the physiological resistance is lowered from some cause or the germ takes on greater virulence, such cases indicate how fallacious may be the fixing of periods of incubation, as regards period of in-The danger from the ordinary frank attack is comparatively insignificant as the man is admitted into hospital, isolated, and precautions taken at once Contacts who may be harbouring Eberth's bacillus can be watched or isolated Cases in the initial stage without definite symptoms can also be isolated The most dangerous cases are the ambulatory and those in the initial stage of the disease, and the main indication is to detect and isolate them at the earliest possible moment In this medical officers of units have a serious responsibility, as have also section commanders and company officers, who should be able to detect that these men are not in health and send them to hospital disease is suspected, a blood culture enables us to diagnose it at once, at least in peace time

There ne, of course, many non-commissioned officers and men who will make light of their ailments and not complain even when quite ill During my service I have admitted into hospital from amongst Indian troops, 13 cases of pulmonary tuberculosis in the 2nd and 3rd stages, all of whom had never been to hospital-11 of these were non-commissioned officers, one has known a Guikha havildai do his 15-mile test maich with severe dilatation and mitial regurgitation, drop dead at the end of it, and many other cases which indicate that the finest spirits amongst non-commissioned officers and men will often suffer much

before reporting sick

No person who has enteric or para-typhoid fever, or has engaged in nuising such cases, should have anything to do with the handling of food for troops for a year afterwards, and even then his dejects should be examined periodically for several occasions before he is given employment connected with food All troops arriving from stations where enteric or paratyphoid fever prevails should be carefully watched to prevent its introduction through

There is still a great deal of work to be done in connection with the morphological and clinical relations of the various species of breilli closely related to the original Bacillus typhosus and the different para-typhoid bacilli and much investigation has still to be carried out in connection with the epidemiology and endemiology of typhoid fever before we can assume that our preventive measures have reached the limits of possibility. Such investigations are being carried on throughout the civilised world, and military medical officers, especially those in India, are the chief workers in this field.

### BACILLARY DYSENTERY "CARRIER"

The evidence accumulated during the last five years or so is to the effect that there exists a class of bacillary dysentery "carrier," persons who discharge the bacilli of epidemic dysentery (and possibly others who discharge A histolytica) from unhealed intestinal lesions which reach the bowels of healthy persons in various ways The obvious lesson from this is isolation of all such cases and destruction of their dejecta until the latter are proved to be free from the infecting There is some evidence to show that the bacilli of dysentery may live in the healthy alimentary canal for some time without causing any symptoms of the disease, until the resistance of the person harbouring them is lowered by a chill, some alimentary disturbance from defective food, etc, when they rapidly multiply, possibly acquire increased virulence, and attack the lining membrane of the large bowel vigorously the disease is in a widespread epidemic form it is possible that these germs are contained in the bowels of a large number of healthy persons, ready to light up the disease as above stated Investigations so far appear to indicate that the healthy soldier carrier of bacillary dysentery is rare and almost negligible The most dangerous carriers are the incomplete convalescents which form the largest class—they should be isolated until they cease to discharge bacilli, we have abundance of evidence now that they discharge virulent bacilli for weeks after apparent recovery The actual patient under treatment we can easily safeguard against True amoebic or tropical dysentery is at the present day an infrequent disease in our Aimy in India

It is quite possible that we have several types of bacillary dysentery, but as far as we know at present clinical and post-mortem evidence appears to indicate that the disease as met with in the tropics is everywhere the same, varying only in its degrees of severity—from symptoms similating a severe diarrhoea or infective enteritis, to those associated with discharge of exuvire in putrid stools—from a catarrhal congestion of the superficial part of the mucous membrane of the large bowel, to destructive inflammation of its whole thickness Bacteriologically, so far we have only been able to differentiate strains of bacilli which differentiate from one another but slightly

in morphological and cultural characters, and reactions with the sugars Hiss' Y-bacillus, which produces such a severe form of dysenters, has not up to the present been isolated in India We are quite certain that as far as the Army in India is concerned there is a marked difference in the intensity of the pathological and clinical characters of the disease called "dysentery" 40 or 50 years ago by Goodeve, Morehead, MacLean and other writers of that period, we now seldom see the severe forms of gangienous dysentery then described. Bacillary dysentery has ceased to be the terrible disease it once was in our Aimy in Half a century ago, it was one of the chief causes of admissions and mortality 60 to 70 per cent of the cases we now treat in military life are simply catarrhal inflammation of the large bowel This change has been brought about gradually by many sanitary improvements, chief of which are the introduction of pipedwater-supplies, change in methods of removal and disposal of night-soil, especially the abandonment of the dry-earth system, and by the decrease In former years entire cantonments or parts of cantonments were notorious for the epidemic or endemic dysentery which occurred in them, some of the cantonments which had this evil reputation are now practically free from the disease

With such evidence as is at our disposal at present we are justified in entirely discrediting the view that ordinary Bacillus coli communis is capable of acquiring specific virulence and pleomorphism and of causing either bacillary dysentery, enteric, or para-typhoid fever

When we consider the numerous ways in which bacillary dysentery may be conveyed from the sick, convalescents, or healthy carriers of Bacillus dysenteries, either directly or through fomites, by water (which in some parts of India plays as important a rôle in the dissemination of the disease as it did in our Army in India, 40—50 years ago), by flies, infected food, soil and dust—we recognise the various factors we have to guard against

There is little doubt in one's own mind that the habit of using the left hand by Indians for ablution after defectation is a source of infection and reinfection in bacillary dysentery and other diseases, especially when we consider that they use their fingers in eating, and not knives, forks and spoons. The bedding and clothes of dysentery cases become infected and may communicate the disease to others, the necessity of disinfecting these articles of men who have suffered from this disease is obvious

The incidence of bacillary dysentery has gone down progressively with that of enteric fever in European troops, but the ratio of decrease of former is lagging considerably behind the latter Both these diseases are similar in their method of spread and general epidemiology, and the preventive measures to be adopted in them are very much the same

One has observed in several tropical countries that dysentery cases are treated in ordinary wards and not isolated as infective cases a quarter of a century ago, before we knew the nature of the dysenteries, one saw in the Presidency General Hospital, Calcutta, a dozen cases of bacillary dysentery, all in European patients suffering from some other disease, acquired in the same ward from one man, and one has several times seen less marked instances on a smaller scale since All bacillary dysentery cases should be isolated or treated in separate wards

Bacillary dysentery has in the past been the scourge of Armies both in tropical and subtiopical countries In our South-African War of 1900-1902 there were 31,000 cases admitted, in our Indian Frontier Campaigns it stands second only to malana in Indian troops, and to malaria and enteric amongst our European One has no hesitation in stating that in the absence of efficient sanitation on modern lines, and especially watchfulness in regard to the "carrier," it will continue to be one of the greatest drains on our fighting forces

In connection with bacillary dysentery we have still a great deal of work to do in regard to its epidemiology Is it due to different strains of bacilli, or to varying degrees of intensity in the virulence of one or more strains? We have still to ascertain the relation of epidemic dysentery to water-supplies and soil infection Personally one is disposed to consider that varying virulence exists in the few strains of the Kruse-Shiga bacilli that have been differentiated in India We know that in cholera the virulence of the comma bacillus tends to die out in epidemies until it is finally as harmless as it is in the old and involuted cultures of test tubes We know also that the time strains of Kiuse-Shiga bacilli connected with the disease in two districts moderately adjacent may produce very serious differences clinically and pathologically. It is possible that similar differences occur in Eberth's bacillus and ın Bacıllus par atyphosus A

# CHOLERA "CARRIERS"

It is now generally admitted that there are always a certain number of apparently healthy "carriers" during cholera epidemics Freidheim found 89 in connection with 415 cholera cases F Gotschlick has given similar evidence They act as "carriers" for the same length of time as the recovered cholera cases We had a melancholy illustration of the effects of "carriers" amongst the nurses of the Calcutta Presidency General Hospital in 1909, the carners being the cooks' assistants in whose stools Haffkine demonstrated cholera vibrios This fact, that persons unsusceptible themselves to cholera, may jet be the carriers of virulent vibrios, presents us with a very formidable task, and widens the problems of prevention in a way that had not hitherto been anticipated. The healthy carrier is

undoubtedly a very real danger, the risk from other carriers can under a sound system of prevention be safeguarded against It is also on record that cases occur in which cholera bacilli are found in the stools some days before the attack comes on Carriers amongst men who have suffered from the disease are, of course, fewer than in other diseases - fewer survive Ambulatory cholera is. however, notoriously common during epidemics. About 20 years ago, in two of His Highness the Nizam's Indian Infantiy battalions, one proved that a large percentage of the cases of what appeared to be simple diarrhoa occurring during a severe epidemic of cholera, were the latter disease—comma bacilli were contained in the stools, in almost pure culture. In another epidemic, while inquiring into the origin of a localised outbreak of cholera in a bazaai and demonstrating to a newly appointed inspector of nuisances the characters of rice-watery evacuations of cholera, he said he had been passing stools of that nature for two days-he was dead within 24 hours. He had been at work during those two days But even these cases of ambulatory cholera can by constant vigilance and inspection of troops and followers be discovered and The man we cannot guard against is the healthy carrier who has not had the disease Our best preventive measures are isolation of "contacts" and incineration of the excreta of the There is no way of distinguishing whole force ordinary simple diarrhoea from the premonitory relaxation of the bowels of cholera except by a bacteriological examination of the stools Such examination is readily carried out with a weak solution of fuchsin, and in actual cholera shows the bacilli in actively moving swarms, often in We are now familiar with the main pure culture facts of the epidemiology of cholera, and it is possible in practically all cases in cantonments to prevent its attacking troops epidemically, although the labour in doing so may at times be considerable, especially when it prevails epidemically amongst the inhabitants of adjacent towns, villages, and bazaais, and our water-supply is of doubtful quality

In our cantonments in India and Buima we have abiding confidence that we will not get the widespread epidemics of cholera of 30-40 years ago, but this assurance is perpetually tempered by a watchfulness of our water-supply which we guard in every possible way We get occasional cases of cholera, but they are now invariably imported of acquired by men visiting infected areas. One has several times marched with troops through districts in which the civil population was being decimated by cholera without a case occurring, but this exemption was not the result of our old larssez faire methods—it meant uninterrupted attention of every British Officer of the units in regard to the water-supply, milk supply, tood, habits of the men, keeping them from the infected areas, and a score of other precautionary measures

The subject of the "insect carriers 'of infectious disease in our Army in India will be dealt with on a future occasion

NOTES ON A RENAL CASE, WITH REMARKS ON THE RELIEF OF RENAL PAIN BY WASHING OUT THE PELVIS OF THE KIDNEY THROUGH A URETHRAL CA-THETER

Bi D. MUNRO, MB, IBCSE, MAJOR, IMS,

1st Resident Surgeon, Presidency General Hospital, Calculta

I THINK the following case to be worth putting on record for two reasons—(1) because it shews how one may be misled by definite cystoscopic appearances into diagnosing a more serious state of affairs in the kidney than actually exists (2) because it is one of several which have come under my care when renal pain has been relieved by washing out the pelvis of the kidney through a urethral catheter

N G, a seaman of good physique, was admitted into hospital suffering from pain in the left lumbar region, which had come on sudden by five days previously whilst he was stooping at his Whilst he was under observation there was continuous dull pain, but there were also sharp paroxysms which attacked him daily with remarkable periodicity in the early hours of the This pain was stabbing in character, and radiated round to the left groin, and under the left costal margin in front I never saw him in an attack, but the accounts were typical of There was tenderness on pressure renal colic in the angle between the last rib and elector spinæ on that side The urine shewed a thick deposit of phosphates, and later, when examined microscopically, pus cells and red blood cor-There was no manifest hæmaturia X-Ray examination (both screen and photograph) failed to shew any shadow of a calculus A leucocyte count was normal, and the temperature remained normal or only slightly raised during his whole stay in hospital

After observation for three days I performed The bladder wall was the first cystoscopy noted as healthy in appearance, as was also the right ureteric orifice from which clear urine was The left ureteric orifice appeared seen to spurt more retracted than the light, but there was no reddening, in fact if anything it appeared paler Even after watching for some than normal minutes no urine was seen to issue from the left A urethral catheter was passed uneteric orifice for eight inches up the left ureter, I could not pass it further as it appeared to meet with some As the No urine came through it obstruction catheter was being withdrawn, some caseous looking material was squeezed out between it and the ureteric orifice when withdrawn the catheter was found it to be smeared with cheery purwith which also the eye of the catheter was blocked. The urine withdrawn at the time was centrifugational the caseous material at the bottom examined for tubercle bacilli, with negative result.

The condition seemed to me to justify an exploratory operation, and accordingly the kidney was exposed by the usual lumbar mersion and brought out in the loin. It was noted to be large. No stone or tumour could be felt in the pelvis which was not dilated. To outward appearances the whole kidney was absolutely healthy.

The pelvis was incised and a probe passed down the left meter to the bladder-it passed A sterile solution of methylene blue was injected into the opening made in the pelvis of the kidney and was immediately afterwards recovered from the bladder The kidney was exploted from side to side with a fine trocar, no stone was found, and no pus The opening in the pelvis was accordingly closed with fine catgut sutures which did not include the whole thickness of the wall, and the kidney replaced was put in for twenty-four hours The wound healed by first intention, and for three weeks the patient was very pleased with himself The paioxysms of pain then began again though slighter in degree and the urne was found to contain pus and red blood corpuscles Tubercle bacilly and B coli communis were looked for, but not found A month after the operation I performed the second cystoscopy The left meteric onfice was found to be a little reddened—the bladder was The methial otherwise healthy in appearance catheter was passed for nine inches up the left ureter, and one ounce of warm boric lotion inject-At once a worm-like caseous cast of the meter began to squeeze its way out alongside the methial catheter The catheter was withdrawn and was followed by a gush of pus The bladder was then relieved of the turbid fluid which it contained and which was obscuring the view, on refilling the bladder with clear lotion a number of caseous worms were seen lying on its base methial catheter was again introduced and another ounce of warm borne lotion injected, which returned blood-stained

This procedure again relieved the patient, and as a matter of fact he was free from severe attacks of pain from then on until he left the hospital nearly a month later. The only kind of pain from which he suffered from them was apparently intestinal at any rate it was quickly relieved by carminative mixture, and there was no tenderness on pressure over the kidney area.

Ten days after the econd cystoscopy his urine still contained pus cells, and I determined to wash out the pelvis of the kidney again. At this the third, cystoscopy, three ounces of  $\frac{1}{2}$  per cent. silver nitrate solution were injected. Some turbid, but not caseous, pus escaped along side the catheter on this occasion. The urine remained clear from then on till his discharge from hospital a fortnight later and during this period he was walking about, not complaining in any way

With regard to the inferences to be drawn from the cystoscopic appearances, it seems clear to me that a considerable amount of caseous pus may be seen to escape from an ureter whilst the kidney itself is in a very early stage of disease. In the above case nothing definite was found at the operation, though the history (both antecedent and subsequent) and the cystoscopic appearances make it obvious that there was some focus of disease undiscovered at the operation, probably a tuberculous papillitis with a small breaking down focus. The renal colic was undoubtedly due to plugs

Of caseous matter passing down the ureter I do not think that this relationship of cystoscopic appearances to the stage of disease in the kidney has been brought out clearly enough in the literature on cystoscopic

The second point about this case is the relief from pain afforded by washing out the pelvis of the kidney. The above is not the only case in which I have observed this I have notes of five other cases in which relief has been obtained after this procedure and in one or two cases also I have noticed that the mere passage of the urethral catheter without washing out has been followed by a lessening of the pain which was before complained of

The introduction of fluids into the pelvis of the kidney through a urethral catheter as a means of local treatment is not a new procedure Pyelitis both of bacillus coli communis and of pyogenic origin has been treated by instillation of silver nitrate solution, and Pardoc claims for this method of treatment that it hastens the cure

Of the five cases in which I have tried it one is the case quoted above, he certainly seemed to be better after it. The other four were all cases of unilateral renal colic, in whose urines red blood corpuscles, pus cells, and a heavy deposit of phosphates were found. In three of them, the pelvis of the kidney on the affected side was washed out with warm boric lotion.

A procedure which was followed by such marked relief that they left hospital without any further treatment declaring themselves well

In the fourth case I used a 5 per cent solution of silver nitrate of which three drachms were injected. This solution was too strong and was followed by an increase of pain which, however, wore off in 48 hours, leaving him free from pain. This case is still under observation.

I do not mean to claim that the disappearance of the renal pain in these cases is accompanied by a disappearance of the cause. On the contrary I should not expect the relief to be more than temporary, but the fact that there is relief seems to me to indicate value in this line of treatment.

It has occurred to me that in these cases when the symptoms are, I think, due to passage of phosphatic deposit down the ureter instillation of a weak acid solution to dissolve the phosphates, followed by washing out with distilled water might be the means of effecting a cure, and I intend to try this at the earliest opportunity Similarly, it seems possible that some solvent for unce acid might be found, non-injurious to the tissues, which might be effective in the local treatment of renal calculus without operation

### MALARIA AND COLOUR

BY W H KENRICK,

MAJOR, IMB,

Malaria Officer, C P

While looking through an old number (April 1901) of the *I M Gazette*, I came across an interesting editorial comparing African and Indian malaria, in which the real immunity enjoyed by the adult African is attributed to a racial experience of the disease, longer and greater than that associated with the inhabitant of the plains of India The native of the Indian plains is, in most cases, not an aborigine, as is the African negro

In parts of the country subject to endemic malaria, the aboriginal tribes, indigenous to those places, will be found to possess as high a degree of immunity as the African A feature which they possess in common is a high degree of skin pigmentation, and in some way immunity to endemic malaria depends upon the colour, as a rule the darker a native is, the more likely he is to be immune

This applies not only to Indians of different classes, but also to members of the same aboriginal tribe

Among the Korkus, Gonds, Baigas, &c, (aboriginal tribes inhabiting the forests of the Central Provinces), the fairer children have a higher degree of splenic enlargement than the darker ones, and if by chance an adult is found suffering from chronic malaria he is almost invariably found to be of fairer colour than the rest of the villagers

Where members of two different tribes are found occupying the same village, that with the darker skin will be found to possess a lower spleen rate among the children, and a lower adult fever rate.

This dependence of immunity upon colour is seen at its best in the case of immigrants from the plains to hyperendemic areas a village with a composite population will show slightly enlarged spleens among the children of the deeply pigmented aborigines and marked enlargements among the fairer immigrant children even adults being heavily infected, the fairer the casts the greater the malarial saturation. Even an immigrant community of several generations standing in a hyper-endemic locality if of fairer skin than the indiginous inhabitants will show an abnormally high endemic rate.

As the higher caste children (Bunnias, Ahirs, &c) are usually better fed, clothed, and housed it cannot be a question of increased susceptibility owing to exposure, scarcity, or health deterioration, conditions more often found in association with the aborigine

It is also noticeable that forest subordinates, and others, whose work takes them into hyperendemic areas, suffer from chronic malaria more or less in proportion as they possess fair or dark skin

That it is not a question of the confusion of cause and effect, viz, malaria infection bringing about comparative fairness of skin, is shown by the relative immunity possessed by immigrants of dark skin

Malana undoubtedly prevents reaction to sun exposure through formation of protective pigment, and as pigment is known to hold up the ultra violet chemical rays of sunlight it is the reason why a person suffering from malana is so susceptible to the heat of the sun

In this connection the results of malarial infection on the blood, would suggest the hæmoglobin rather than the epidermal origin of skin pigment

The question is in what manner does the extent of skin pigmentation influence the amount of malarial infection in an individual

# A Mirror of Hospital Practice.

### A NOTE ON TWO UNUSUAL CASES OF CYSTS

BYE AR NEWMAN, MD (Camb),

LT COL., I M S

Civil Surgeon, Alipur

Case 1—Hindu female, M, aet 29 years, was admitted to the S N P Hospital on April 26th (sent by 1st grade, Assistant Suigeon Hari Pada Mukarji, in medical charge of the Sagore Dutt Hospital at Kamarhath) complaining of a swelling of the abdomen, with the following history—

Three children, last born a little over 12 months ago Menstruation regular. One month after her last confinement noticed a swelling in the abdomen which was painful at first and ac-

companied with some fever—It increased gradually in size—but all pain subsided after four months

Condition on admission -A spare poorly nourished woman Organs generally healthy Abdomen distended to about the size of a six months' pregnancy Some ascites evidenced by shifting dullness in the flanks On palpation a smooth ovoid tumour roughly 10 inches in length could be felt lying on the right side of the abdo-The upper pole which was smooth and hard was about a handsbreadth from the hepatic margin, the lower pole soft and elastic was resting in the brim of the pelvis Per vaginam the lower pole was found to be pushing the uterus to the left and partially obscured it The tumour was very freely moveable in all directions only condition, it suggested, was an advanced ectopic gestation with the fœtus free in the peri-As this is so have a condition. toneal cavity a positive diagnosis was not ventured on

On April 28th, the abdomen was opened below the umbilicus through the right rectus sheath On inserting the hand the tumour could be felt free from all adhesions, and only attached by a long pedicle, which apparently took its origin from the peritoneum in front of the bodies of the 4th the 5th lumbar vertebræ. After enlarging the wound a little upwards, the tumour was delivered by expression, lower pole foremost. The pedicle some 2 inches broad containing a leash of 3 or 4 vessels was ligatured and divided. The excess of ascitic fluid was drained off and the wound closed in layers.

Convalescence was uneventful The wound which was diessed on the 10th day united by first intention, and the patient was discharged at her own request on the 26th day following operation. She had gained considerably in weight and lost her careworn emaciated appearance.

On examination the tumour was found to be cystic throughout. It was roughly 9 inches in its long diameter and  $4\frac{1}{2}$  inches in its transverse diameter. The wall of the upper half had undergone calcareous degeneration and contained a large cavity full of clear fluid. The lower half was tense and elastic and full of multilocular cysts. The uterus and appendages were perfectly normal, and it was certainly not of ovarian or parovarian origin. I have never seen or read of anything quite like it and have still no idea of its nature

Case 2—Mahommedan male, aet 31 years, presented himself at the O P Department on July 21st on account of a tumour of the right buttock which he first noticed 4½ years ago and which had gradually increased in size On inspection there was a definite globular swelling about the size of a large duck's egg projecting downwards from the right gluteal fold. The skinover it was freely moveable and normal in appearance. There was a very definite impulse on coughing and it was dull on percussion. On

palpation in the pione posture, it flattened out but did not entirely disappear.

Fluctuation was definitely elicited It was clearly of cystic nature and seemed to project or emerge from the scratic notch

On July 23rd with the patient in a semiprone position on his left side, an incision was made over the tumour dividing the skin and deep fascia, and the cyst was separated from the suirounding tissues by blunt dissection aided by a touch or two of the knife In pushing the dissection towards the sciatic notch the capsule was accidentaly suptured and a considerable quantity of purulent-looking fluid with a floculent caseous precipitate escaped The cyst cavity inside the pelvis extended beyond the reach of the four finger. The portion of the cyst wall exterior to the sciatic notch was cut away and some redundant skin removed A medium sized dramage tube was inserted into the pelvic portion of the cyst, and the wound reduced in size by two silkworm gut sutures deeply  $\mathbf{on}$ either side of the tube, and stuffed with subgallate of bismuth gauze  $\mathbf{W}$ hen the wound had granulated satisfactorily the interior of the cyst was irrigated daily with a fairly strong solution of rodine, and the tube gradually shortened At the time of writing a small sinus only remains which is rapidly closing Great credit is due to the care and attention of Dr Jnanendra Nath Chatterjee, that the case pursued a practically aseptic course, in spite of the extremely unpromising situation in the vicinity of the anus

The cyst was clearly a dermoid or inclusion cyst, the smooth shining epithelium lined wall, settling any doubts on the subject At first the possibility of a herma or a chronic tuberculous abscess suggested itself

The unusual characters of these two cases render them, I think worthy of record

### FRACTURED SPINE PARAPLEGIA, LAMINECTOMY

BY HUGH WATTS, M B (Lond ),

CAPT, IMS,

Civil Surgeon, Betul, CI

Damroo, aged thirty, was admitted on June 31d, with the history that in attempting to recover a bucket he had fallen down a well, striking his back on a projecting piece of rock mission he had complete paralysis of both lower limbs but heat and cold could be distinguished, while tactile sensibility was increased

The patellar reflexes were absent, no plantar reflex or ankle clonus could be elicited

The bladder was full and was emptied by a catheter

In the lower dorsal region was a prominence, in the middle line pressure over which was

extremely painful, while there was a zone of hyperæstheno round his middle.

Urine diibbled away, but he was very con-

stipated.

The most striking feature, however, was the intense hyperæsthesia over the lower limbs. which become so sensitive, that even a bieeze passing over them caused the patient distress.

About a week after his injury, it was noted that the knee-jerks were occasionally present the paralysis remained complete, except that

he was able to move his right great toe

As he was suffering a great deal of pain, which did not seem to perceptibly diminish, it was decided to operate on the ground, that the lesion of the cord was evidently not a complete one and that removal of bony pressure might anyhow be expected to relieve his pain, even if the paralysis persisted

He was not operated on till the 17th, as we had no instruments suitable in the hospital

and they had to be borrowed

The incision was made in the middle line over the projecting vertebræ, the spinous processes and laminæ well cleared of muscles and the 10th and 11th dorsal laminæ were sawn through on each side with a Hey's saw, as close to their junction with the bodies as possible, and these two arches removed

The cord seemed to be stretched tightly over the displaced body of the 11th dorsal vertebra, but was not pulped or obviously injured, the spinal membranes were entire The muscles were sewn in layers, but a tube was left in down

to the gap between the laminæ

Next day it was found that the dressings had been soaked with urine as the man-an extremely jungly person—would not endeavour to try and keep himself dry when it was dressed, it was found that the drainage tube, which was of old rubber had cut away from the suture by which it was anchored, and had disappeared into the wound, this had to be partially opened up

As might be expected, the wound did not unite by primary union, on the 22nd the superficial stitches were removed and the wound opened up and painted with pure carbolic.

It slowly granulated up though for some time yellow sewn fluid escaped from a sinus, which persisted along the tuck of the drainage tube

His progress, nowever, was most gratifying, the pain very quickly disappeared and power in his legs returned, in fact a day or two after the operation he managed to pass a motion on the floor at the side of his bed ?

His present condition is, that he can get about fairly well with crutches and is still improving, while he can raise himself from the sitting to the upright position by holding on to a pullian on the ranks of his bed.

His left leg is much stronger than right which is only about two-thirds of its size and which has no knee-jerk though the left kneejerk occasionally be elicited

Plantar reflex, when obtainable is flexor

He has no pain but is tender over the scar which is quite firmly healed, while percussion over it causes contraction of the erector spinal

S A S Tagore gave the anaesthetic very satisfactorily, while Asst Surgn Chandorka assisted me and carried out the after-treatment assiduously

# PARTIAL SUPPRESSION OF BOTH UPPER EXTREMITIES

BY OS HUNTLY BULLOCH, MB, ChB, Neyyoor General Hospital, Travancore

The following case may interest some of your readers —

Ponnandy, aged 22, male, single, showed himself at hospital on the 8th September 1913

As this condition is lare it was thought worth while recording it and taking his photo, a copy of which is enclosed

He is an active intelligent man, speaks well, and writes with his toes. He feeds himself by means of a specially constructed wooden spoon which is attached to his foot at meal times. Enclosed is a sample of his footwriting in English and Malayalam.

He oils his own head and chest with his right foot. He can even bring down the most tempting mangoe to his feet from a 20ft tree by grasping a twig with his toes and casting it up in the an with great force. On offering him money he accepts it between his lips and neatly drops it into his right hand.

Right side -Clavicle present

Scapula represented by a short spine fixed to acromion process

Humerus absent

Carpals, some present

Metacarpals, 1st, 2nd, and 3rd only and separate

Phalanges—1st and 2nd of 1st metacarpal

Those belonging to 2nd and 3rd metacarpals are fused together and present a ridge midway

Small bones possibly representing radius and ulna may be felt on turning the hand up. The lines on the hand are curious. The nails are kept long

Patient can move light hand up and down

Left side - Clavicle present

Scapula absent

Under acromion process, corocoid fixed to rib 2 Thumb as on right side

Bones of forearm absent Carpus present First three metacarpals present

The phalanges of the 2nd and 3rd metacarpals are also separate, but are curved over with one fold of skin only

Long hairs present under acromion process Humerus and bones of forearm absent

Left hand is shorter than right and patient is unable to move it

Left cervical rib or enlarged transverse process of last cervical vertibra also present

No other deformities could be found

It is a pity we have no X-Ray Apparatus as that could throw more light on the condition

It seems remarkable that this man should have lived as long as he has and the credit must be due to those who have waited upon him with his meals. He seems to be happy

### PROSTATECTOMIES PERFORMED

By DALIP SINGH,

ASSISTANT SURGEON,

Civil Hospital, Sialkot

In 1911 I performed nine Prostatectomies with one death of which two were permeal and seven were supra pubic Eight were Mahomedans and one was Hindu Then ages varied from 50 to 80 years The one who died was Mahomedan and youngest of all He died on the 3rd day after the operation from incessant vomiting in spite of all the efforts to check vomit The first two were permeal, but from this little experience of mine I can say that suprapubic is the easier and safer of the two if the gland be as big as an almond it can be enucleated within five minutes with the finger Some surgeons use along with the nail bent scissors, but I have never felt the necessity for it and have always removed with a nail

This year I have performed nine supra pubic prostatectomies with one death The patient was very old and of broken down constitution I was not inclined to do the operation but his relatives forced me to do One of these cases named Lala Janki Das of Jhang, was suffering from enlarged prostate for four years and was drawing out his urine with a catheter been to all the surgeons and was always advised not to get himself operated upon At last he came to me in the month of February and on examination I found that he had got a very big He was admitted in the hospital and after two days he was operated upon in this case there was some hæmorrhage, and after the operation I had to do saline injection but the patient made a wonderful recovery, and he was discharged within a month from the hospital In almost all the case the urine generally comes through the urethra after 18 days or so, but in this case the urine came out through the urethra after five days

In one case I could not pass the catheter to fill the bladder, as false passages were made by some quacks I did this operation without the injection of fluid into the bladder and the patient got cured.

# Indian Medical Gazette.

**DECEMBER** 

# THE WOMEN'S MEDICAL SERVICE FOR INDIA

THE regulations for this new service have been published and have been commented upon by Sir Paidey Lukis, Kosi, in an opening address at the London School of Medicine for Women, on 1st October 1913 We cannot do better than republish some of Sir Pardey Lukis remarks on this important advance in medical matters in India —

The work of supplying female medical aid to the women of India is chiefly performed by two voluntary agencies—that of the missionaries and what is generally known as the Lady Dufferin Association Of late years the work of the latter association has been subjected to much criticism, and there can be no doubt that the conditions of service have not been such as are calculated to attract the right stamp of medical woman complaints have been made, especially as regards suboidination to men, hability to sudden dismissal, absence of incremental rates of pay or provision for retirement, or any definite rules as regards furlough and study leave I do not propose to enter here into the contro versy that has raged round this subject, but I shall merely state for your information the manner in which it is now proposed to redress the legitimate grievances and improve the position of medical women serving under the Dufferin Association

In the first place, it may be as well to mention that the Government of India have decided definitely against the creation of a State service of medical women, they have, however, approved of a grant of £10,000 per annum for a service of medical women under the Central Committee of the Dufferin Association. This service will be called "The Women's Medical Service for India," and I have received the permission of the Central Committee to sketch out for you in outline the conditions of service which received final sanction at the meeting held in Simla early last month

The service in the first instance will not exceed 25 first class medical women, one-fifth of whom will constitute a leave reserve Its members, subject to certain provisions, which I will mention later on, will be under the direction and control of the Central Committee of the Dufferm Association I may mention here that there is already one medical woman serving on this committee, and that the question of adding a second is now under consideration Recruitment for the service will be made in two ways (a) In India, by medical sub committee of the Central Committee which shall include the Director-General of the Indian Medical Service, the Surgeon to His Excellency the Viceroy (who is also the honorary secretary to the Central Committee), and a first class medical woman (b) In England, by a su bcommittee consisting of a medical man

and two medical women conversant with Indian conditions, to be nominated by the Home Committee of the Dufferin Association. Such sub-committees will perform the duties of a Medical Board, examine candidates for physical fitness and give permission to return to duty after invaliding, and in India the sub-committee will have power to appoint temporary local boards in cases of emergency

The Central Committee will decide what proportion of the members of this service shall be recruited in England and in India respectively. In the original constitution of the service duly qualified medical women who are already in the service of, or who have rendered approved service to, the Dufferin Association will have first claim to appointment, and thereafter special consideration will be paid to the claims of candidates who have qualified in local institutions and of those who are natives of India

All newly appointed members of the service must be British subjects They must be not less than 24 or more than 30 years of age at the time of recruitment, and they will, except under special circumstances, be retired on attaining the age of 48 They must possess a medical qualification registrable in the United Kingdom under the Medical Act or an Indian or colonial qualification higher than the LMS and they must produce certificates of health and character They will engage for general service anywhere in India or Burma, and they will then be appointed by the Central Committee to serve in different provinces On first appointment they will serve a period of probation in one of the larger hospitals, extending in the case of those recruited in England to six months, and in the case of those recruited in India to three months At the end of such period of probation their appointment will be confirmed or terminated, as the case may be, by order of the Central Committee, and after confirmation service will be terminable at any time by three months' notice on eithei side

Members of the service will receive a salary of Rs 350 per mensem during their period of probation, and thereafter a salary of Rs 400 from the first to the fourth year inclusive, Rs 450 from the fifth to the seventh year, Rs 500 from the eighth to the tenth year, and Rs 550 after the tenth year, but no member will be confirmed in the Rs 400 grade unless she passes her examination in the vernacular within one year of her appointment In addition suitable quarters will be provided free of rent, or house rent will be given in lieu thereof There will also be a provident fund as a provision for retirement Members of the service will draw travelling allowance at the usual rates, and they will be entitled, in addition to the usual privilege leave, to eight months' furlough after four years' service and to study-leave up to nine months Whilst on furlough they will draw half pay and two thirds whilst on studyleave They will be permitted to engage in private practice, provided that such private practice does not interfere with the performance of their official duties

When members of the service are appointed to provinces they will forthwith become subordinate to the Provincial Committee which shall have powers of punishment, including suspension, but the power of

removal from the service or dismissal for inefficiency, misconduct, or other valid cause, will be vested abso-Intely in the Central Committee Any member of the service who has been recruited in England, in the event of non confirmation at the end of the period of probation or on removal or dismissal, will receive a sum sufficient to cover her return journey to England Every ho-pital will be in charge of a local committee, and the medical woman in independent charge of such hospital will be entitled to attend all meetings of the local committee She will have full professional control of her hospital, and such powers of administrative control as may be determined by the authorities financially concerned. She will not be under the civil surgeon in any way, but should she wish to do so, she can always call him in for professional assistance or consultation

As regards the inspection of women's hospitals, it is proposed to associate with the Inspector General of Civil Hospitals one of the senior medical women in each province, who will receive extra pay and travelling allowance for this purpose, but she will not be a fultime officer. She will make her visits of inspection in addition to any which the Inspector-General of Civil Hospitals may think fit to make himself, due regard being paid to purdah. She will also be expected to give sympathetic judgment, opinion, and advice to the jounger women in charge of hospitals. It is proposed also that the inspection of the minor female branch dispensaries shall be entrusted to the medical woman in charge of the large hospital at the headquarters of the district concerned.

Lastly, the Central Committee, who will now be mainly responsible for the salaries of the medical women of this service, hope that the provincial committees will devote the funds they will thus save to increase their staff of female assistant surgeons, who will work as assistants to the medical women in charge of the larger hospitals

### REMARKS ON THE SCHEME

This, ladies, is the scheme, which I think you will agree redresses all legitimate grievances and gives the medical woman in India an assured and definite position It requires no further explanation on my part, but I should like, with your permission, to reply to one criticism that has been made on it, and also to offer a word of advice to any candidate who may think of entering the new service. The criticism to which 1 refer is to the effect that the rate of pay on first joining is inadequate, and that it will not attract the right type of woman In leply to that I would point out that when you take into consideration the free house, the terms are better than those offered to young officers of the Indian Medical Service Moreover, from the very beginning the medical woman has the opportunity of private practice, whereas the young officer of the Indian Medical Service spends his first five or six years in military employ, where he can have little or no private practice, whilst he has in addition all the expenses incidental to regimental life

We need only add that the Indian Medical Service as a whole will extend a hearty welcome to the new service

# Courent Topics

### FIELD HOSPITAL EQUIPMENT

Is April 1912, a Committee was appointed to revise the present system of field medical organisation in India and at the same time to bring the field equipment more in accordance with present surgical practice and military experience

The Committee consisted of the following officers —

Surgeon-General A T Sloggett, KHS, Cr, President

Col J C Robinson, A H S, P M o, 1st Division Col A J Cobbe, vc, D s o, General Staff Branch

Major Jay Gould, DAS, MS (Mobilisation)
Major J W Muscroft, Quartermaster-General's
Branch

Major F E Gunter, BAMC, with Col B G Seton, as Secretary

The proceedings of this Committee have now been approved by the Government of India, and the changes in equipment will be carried out gradually

The Committee were of opinion that the existing organisation is based on Frontier experience alone, that insufficient arrangements were made for lines of communication, that much unnecessary material was carried and that there was a great lack of dressings and chloroform

Instead of having only-

(a) Field ambulances

(b) General hospitals

There will in future be four units in the field,

- (a) Field ambulances working with troops at the front
- (b) Clearing hospitals (200 beds capable of expansion)
- (c) Stationary hospitals on lines of communication
  - (d) General hospitals

The equipment of these units will be modified to meet the special requirements of each class

Important modifications have been made in the equipment An Indian field ambulance has bitherto carried 75 different drugs, and a general hospital 178—the corresponding numbers in the British service at home being 42 and 42 only There has, on the other hand, been a very short supply of dressings of many different kinds The new arrangement abolishes boric lint and surgeons too, and for 35 yards of cyanide gaure substitutes 340 of cyanide and 149 of Bandages too have been increased plain gruze in a field ambulance, from 174 to 295 dine, metallic, has been adopted as a new disinfectant, and linen thread takes the place of some of the expensive and perishable ligatures now in use.

A most valuable innovation is the substitution of a "Diessing box" for the old Box 1 Light Medical—Box 2 Light becomes a Field Surgical Pannier; and the old Box 3 Light, the packing of whose complicated assortment of fancy splints has always been a matter of great difficulty, is replaced by a fracture box somewhat on Home service lines, in which perforated sheets of metal, Gooch splinting, and tools are carried

Chloroform has been increased from 13 lbs to

22½ lbs

The supply and transport equipment has been simplified, and new "Medical comfort" and Reserve boxes take the place of the old ones

An important change is the adoption in the Indian units, other than field ambulances, of clothing for patients, and in cleaning and gene-

ral hospitals mosquito nets are added

As regards personnel a field ambulance in future will have 5 medical officers instead of 4, and the senior will draw a command staff allowance of Rs 400 as CO The same will apply to a clearing hospital

### THE GRAVES OF I M S OFFICERS IN THE MILI TARY CEMETERY, CALCUTTA

We direct the attention of our readers to the following letter from the assistant Commanding Royal Engineer, Calcutta, on the neglected state of the graves of nine I M S officers who have been buried in the Military Cemetery, Bhowanipur, Calcutta The small sum of 30 rupees each is only needed to keep them in permanent repair, and we are sure that many of our readers will be glad to help

No 5533

Office of A C R E Presidency Fort William, 1st September 1913

From

To

The Asst C R E, Presidency District,

The Director-General,
Indian Medical Service,
Civil Secretarist Buildings Si

Civil Secretariat Buildings, Simla

Dear Su,

I wish to bring to your notice that monuments described as under exist in the Military Cometery, Bhowampore, Calcutta, but as they are not endowed no funds are available for their upkeep

The cost of endowments would be Rs 30 (£2) each, and it has occurred to me that your service may be disposed to raise this sum in order that the monuments may be kept in repair for the future at the expense of the State

Yours faithfully,
(Sd) W P. WALSH,

CAPTAIN, R C

For Asstt CR E Presidency

of Hospitals, Dacca Circle, died 19th April 1869

2. 32 Robert Banciaft Kinsey, FR.Cs, Deputy Inspector-General of Hospitals, died 1st April 1865.

3 34 Wm Montgomerie Iled 18th September 1855, Superintending on, Bengal Presidency (This is the month, ent which will cost

Rs. 70 to put in order)

4 69 Wm Peskett, M.D., Surgeon-Major, Bengal Medical Estabt, died November 1870.

5 79 Surgeon-Major John Elliot, MD, FCU Surgeon Supdt, Presidency General Hospital

6 80 Surgeon-Major E J. Gayer, IMD, died

231d August 1878

7 82 Surgeon-Major Gopal Chandra Roy, MD FROS, IMS, died 14th February 1887.

FROS, IMS, died 14th February 1881. 8 83 Surgeon-Major C Prentice, Bengal Medi-

cal Service.

9 126 George Green Shilsbury, Physician General, HE 10 s, died 5th July 1857.

### INDIAN LUNACY MANUAL \*

WE gave a very favourable opinion of the earlier editions of this useful manual, the new (3rd) edition has been revised in accordance with Act IV of 1912, which received the assent of the Governor-General in Council in March 1912

Major R Bryson's Manual is an able summary of the Lunacy Acts and Rules regulating the admission into, detention in, and discharge from Government Lunatic Asylums in India of public and private patients. It has been revised by Capt P. Heffernan, IMS, the Superintendent of the Madias Lunatic Asylum

It is a very practical and useful book and no Civil Surgeon's office should be without it. A valuable addition has been made in the last two editions, and that is the rules and regulations regarding insane soldiers of the British and Indian Armies. We have found the earlier editions very useful and this new edition will be more so. We strongly recommend it to our readers, its possession will save much trouble in dealing with these cases, and we hope that every hospital and office in India will possess themselves of a copy

# SIR JOHN P HEWITT ON THE MEDICAL PROFESSION IN INDIA

SIR JOHN P HEWITT, GCSI, the late Lieutenant-Governor of the United Provinces, gave very interesting address on medical matters in India at the opening for the session of St Mary's Hospital School on 1st October We must select a few of Sir John's remarks—

After remarking on the enormous reductions in the death-rates of the army in India and among the prisoners in Indian pails, facts too well known to need repetition here he went on to remark on the great benefits derived from experiments on animals and on the great reduction

<sup>\* 3</sup>rd Edition, 1913, Messrs Thacker, Spink & Co., Calcutta

in mortality from small-pox, due to the steady spread of vaccination

We may quote his remarks on plague and anti-typhoid inoculation, etc —

I have already referred to the terrible mortality from plague in the last 15 years It has long since been recognised that, except in extraordinary circumstances, compulsion is impossible, and the great obstacle with which the Government has been confionted is the diffi culty of convincing the people of the utility of particular methods of prevention or cure. It is not easy to appreciate the mental actitude of people who, without having made a serious study of the facts and figures pertinent to the question, have increased the difficulties of those doing their best to contend with this terrible acourge by asserting that the vaccine discovered by M Haffkine has encouraged the spread of the plague in India. There have, of course been instances in which evil results have been caused by particular doses having been unfit for use, or by the carelesaness of individuals injecting the vaccine, but such cases have been rare and the use of the vaccine has been, speaking generally, of enormous benefit The conclusion at which we members of the Plague Commission unaumously arrived in 1899 was that "inoculation with Haffkine's prophylactic vaccine sensibly diminishes the incidence of plague attacks on the inoculated population, though the protec tion which it affords is not absolute, that it also dimin ishes the fatality of attacks, that its protective effect dose not appear within the first few days after the inoculation, and that the protection lasts certainly for some weeks, possibly for some months"

Since this conclusion was formulated I have had, as the head of the Government of two provinces in succession, one with a population of 47 000,000 and one with a population of 14,00,000, to deal continuously with out breaks of plague. The whole of my experience gained in this interval has confirmed the conclusion of the Plague Commission, and the statistics of the many epi demics in which inoculation has been practised under my own eves go to prove that the use of Haffkine's vaccine has been of the greatest service in protecting people from plague I could quote many cases, but I will content myself with one which has always impressed itself very much on my mind A Parsi friend of mine Sir Bezonjee Dadabhov, the manager of the Empress Mills at Nagpur in which city some years ago a serious epi demic resulting in the death of over 7 000 people occurred, endeavoured to induce the whole of the operatives of The total number on the the mills to be inoculated muster rolls was between 6,000 and 7 000, and the daily attendance between 4,500 and 5 500 The number of mill hands inoculated was 5,046 Among the comparatively small number of uninoculated there were 118 deaths, while among the moculated there were only 9 fatal cases, 6 of which were the result of an attack within 10 days

This is a report from one whose only interest was to benefit the operatives in his employ, and the facts narrated in it prove conclusively that by inducing them to be inoculated he secured protection for them during the opidemic

### ANTITYPHOID VACCINATION

Turning to enteric fever, the first thing that claims attention is that it is much more prevalent among Europeans than among Indians. For many years it was chief among the fatal diseases prevalent in the British army in India. In the last five years of the last century 43 out of every 100 deaths among. British soldiers were due to enteric fever. The greatest liability to suffer was between the ages of 20 and 25 and during the first year of service in India, the liability of men to contract it in the first year of service being at least twice as great as in any other period. At the end of last century possibility of "life would have been as good for the European troops in India as for males of the same age in

England had it not been for the prevalence of enteric

The chief task then before the medical officers employed with British troops was the reduction of the limbility of the British soldier to enteric fever. In 1898, only 15 years ago, the mortality from this cause was over 10 per 1,000 among the native troops it was the same time something between 0 01 and 0 02 per 1,000 The use of Sir Almroth Wright's antityphoid vaccine was attenuted about this time in a spasmodic way, but it was not till 1903 that this plan of fighting enteric fever became In that year 295 deaths were caused by enteric fever, and the mortality caused by it was over 4 per 1,000 Since then the death rate declined, till in 1910 it was 0 63, and in 1911, the number of deaths being 24, only 0 33 In the latter year there were 61,822 men protected by vaccination and 9,552 not protected Among every 1,000 of the non-protected men there were 67 cases and 115 deaths, while among every 1,000 of the protected there were 17 cases and 017 death We must not, indeed We must not, indeed forget that a great deal has been done in the direction of isolating contalescents and bacillicarriers, but these figures like those regarding men in the army in France and America, conclusively prove the beneficial results of antityphoid moculation

### CLOSING REMARKS

What I have attempted to tell you to day will, I am sure, satisfy you that experience in India, as elsewhere, proves conclusively that operations on animals have afforded untold benefits to the human race Performed with the utmost care by skilled surgeons, they are rendered almost painless through the use of anæsthetics, and are followed by a drug-softened death. As instances of cruelty to out dumb friends, how can they possibly be compared to the limitless sufferings imposed on beasts of burden and other animals, on whose aid mankind depends, in India and many foreign countries? One experinces every day in an Indian city horrors in the treatment of animals, inconceivable to the stay-at home inhabitant of these isles accustomed only to the pampered pets and well fed cattle of himself and his neighbours field for the tactful energy of animal lovers there is in that vast country, where pity rarely impels the passer by to put a wounded and stricken animal out of pain instead of leaving it to die a lingering death, where beasts of burden of all kinds are systematically over loaded and regularly worked when they ought to be in the care of the vetermary surgeon, and where even the sacred cow, the animal of the Hindus, is confined in evil smelling and ill-ventilated hovels and often milked by the horrible phuka system which causes it terrible suffering. At present only one institution, enfeebled through lack of funds, makes spasmodic efforts to instil into the staived brains of owners and drivers of beasts some dim recognition of the fact that consideration shown to their cattle is likely to reflect substantial gain on themselves For lovers of animal life, for those whose earnest wish it is to save the beasts of the field from unnecessary cruelty and to ensure for them the minimum of harshness and pain involved in their use in the service of man, there is in India a splendid field for benevolent work which will, like mercy, be twice blessed in bringing relief to the animals which now suffer and honour to those who undertake it Such cases, too, as that of the creature Baker—he dosn't deserve to be called a man—who was recently convicted of sending on a long railway journey a poor little Aberdeen terrier which had been mercilesely pushed into a box utterly inadequate for its size, and with ventilation insufficient for a canary, show that there is still much nearer home to occupy the Royal Society for the Prevention of Cruelty to Animals, whose vigilance we all admire But the last people in the world who deserve to be attacked, on the ground that they are cruel or even unsympathetic towards animals, are those devoted seekers after benefit to the human race, who are in this country in pursuance of the objects of the Research Defence Society, conducting experiments on animals

subject to strict rules and regulations and imbued with the righteous desire to cause them the least possible misery and pain

### DIGITALIS IN INDIA

By the kindness of Mi D Hoopei, Economic Botanist, Calcutta, we are able to give our readers the following account by Mi Gordon Sharp, on the value of digitalis leaves collected in the Nilgiris, and it is very satisfactory to learn that the results of these experiments prove that the leaves grown in India are quite as effective as those grown elsewhere and for years past the Madras Medical Store Depôt has used these leaves—

### Report on Digitalis Leaves

General description—The leaves are those of Digitalis purpurea, Linn, and arrived in sound condition. On casual examination they look in every way like ordinary wild or partially cultivated. British or German leaves and they taste equally bitter when chewed. On closer examination, they have coarser leaf stalks and the venation is somewhat coarser. The leaves themselves are somewhat darker and tougher than we are accustomed to see in Europe as a rule, but I don't think they are much different from wholly cultivated leaves grown in the south of England.

Examination of a Tincture prepared in my own laboratory—To save time I had a small quantity of a L in 8 tincture (British Pharmacopæia) prepared in my own laboratory. This appeared to be darker in colour and to contain more resinous matters than a tincture prepared from ordinary British or German leaves. In taste it was as bitter as a specimen of the best tinctures.

Pharmacological Examination Action on Frog's Heart (Rana temporana) — Made July 16th, 1913 Temp of Laboratory 60° F (155° C) Frogs pithed 24 hours previous to injection, all male frogs employed

- 1 Frog 32 5 grams (620 grams) injected 4 fl mins (0236 diluted to 8 fl mins with saline into dosal mil lymphsae. In 3 hours, the reflexes are in abeyance, the circulation in the web is feeble and the heart is almost stopped—the right auricle is still and there is only a faint flickering movement in the left auricle and in part of the rentricle.
- 2 Frog of 21 grams (324 grams) injected 25 fl mins (0.145 ml) dilute to 5 with saline as before In 3 hours the reflexes are gone, three heart chambers are still
- 3 Control frog weighs 165 grams, teffex action normal, enculation in web active and the heart beating regularly—at the end of three hours when Nos 1 and 2 examined

Therapeutic Action on Human Heart Auricular Febrillation —A woman of 78 who has had beumatic fever suffers now and then from a breakdown in compensation. At the time the

tincture was given her she had a markedly irregular pulse with missed beats at the wrist rate 112 to 120 a minute. Swelling of feet and legs up to knee, fluid in abdomen and right breast and pain at the wrist. Breathlessness and scanty urine, she had been in bed for some days. She was prescribed 15 fl mins (0.888 m.l.) of the tincture every 2 hours.

Condition in 24 hours—Has taken 75 mins. (4439 ml) The pulse is 76 a minute—Passing more unne Swelling of feet less and feels more comfortable—Can sit up without having pain at waist.

Condition in 72 hours—Has now taken 105 mins (6215 ml) Pulse 74 a minute and almost regular in time and rhythm. Swelling in feet, legs, breast and abdomen gone. Breathes comfortably Passing large quantities of mine Complains of slight nausea so evidently under influence of digitalis which has now been stopped

Experiments with Second Tincture—Pharmacological Examination—Frog 1 weight 21 grams (324 grams) Injected 2½ mins (0.145 ml) diluted to 5 at the end of 4 hours reflexes gone, circulation in web very feeble, heart still—auricles in medium diastole, ventricle in full diastole. In 6 hours beat still—all chambers now in systole. In 16 hours no recovery

- fl mins (0118 ml) In 4 hours reflexes in abeyance, circulation in web still, heart still in all chambers in moderate diastole, but on watching for one minute a flickering movement is seen to start in certain areas of the auricles and to pass over to a narrow strip of the ventricle. These continue at intervals of one minute for one hour At the end of 6 hours after injection all is still in systole. In 16 hours after injection no sign of recovery.
- 3 Control frog (17 grains)—reflexes, circulation in web and heart all in order at end of 16 hours when experiment stopped.

The apeutic Action—On Human Heart—Man of 57 with a presystolic mitial murmur, swollen feet, legs, breathlessness, passage of less than 20 fl oz of urine (568 245 ml) Prescribed 15 fl mins of tineture (2663 ml) every 24 hours Pulse 100

### ACTION

First 24 hours—urine 30 ft oz (85 2 m 1 ) pulse 95
Second
Third "" same "" "" 90
Fourth "" 40 " (1136 m 1 ) " 90 swelling
Fifth
Sixth "" 50 " (1410 " ) " 89
"" " 64 swelling
gone

Result of Examination.—A tincture prepared from Indian grown leaves of Digitalis purpurea, Linn, is at least equal in action to a tincture prepared from British grown or German grown leaves

# THE SANITARY CONFERENCE OF BEHAR AND ORISSA

Wi quote the following extracts from the report of this Conference held at Ranchi in August last —

Plaque—The present policy of Government in dealing with plague was considered and approved, the only suggestion made being that greater efforts should be made to popularize inoculation and that the number of inoculators should be largely increased. One member suggested that private practitioners should be encouraged to undertake inoculations.

Cholcia—It was recognized that we must look mainly to general sanitation, and in particular to the protection of the water supply as a safeguard against choleia epidemics. The system recently adopted experimentally by the District Board in parts of the Muzaffarpur district of selling to the public packets of permanganate of potash, each containing a sufficient quantity to disinfect a well, was recommended for general adoption. The procedure to be followed in selling these packets should be similar to that already mentioned in connection with the sale of quininc.

Medical Relief—(1) Pay of medical officers—It was agreed that District Boards ought to give the medical officers in charge of their dispensaries at least the same pay as that given to Sub Assistant Surgeons under Government

- (2) Number of dispensaries—It was agreed that the number of dispensaries should be largely increased, but that it was impossible, in view of varying local conditions, to lay down any general principle. The Conference were much interested in the programmes prepared by the Trihut District Boards.
- (3) Conditions on which dispensaries should be established—With reference to Bengal Government Circular No 26L-S G, dated the 3rd April 1905, it was decided that while, cateris paribus preference should be given to places where local assistance is forthcoming, such assistance should not by any means be regarded as an essential condition for the opening of a new dispensary
- (4) Character of dispensaries—The standard plan of dispensary and scale of equipment was considered suitable for places where the number of patients is fairly large. It was agreed, however, that a less pretentious style of building and less elaborate equipment would suffice for the smaller dispensaries and for those established experimentally in new places.

At the same time the Conference recognized that many of the existing dispensary buildings are unsuit able and their equipment deficient. The improvement of such dispensaries in important places was held to be quite as essential as the construction of new dispensaries.

Inspections — The Conference were of opinion that the inspections at present made by many Civil Surgeons are too cursory and infrequent. This is due largely to the difficulty which the Civil Surgeon experiences in absenting himself for any length of time from his headquarters. As the number of dispensives increases it will become increasingly difficult for the Civil Surgeon to supervise them efficiently. It was agreed therefore that Government should be asked to appoint an Assistant Surgeon to each district where the number of dispensaries justifies it for the purpose of these inspections.

Traceling dispensaries—It was decided that a report on the working of the six experimental travelling dispensaries recently established should be awaited before the system is extended. It was thought, however, that District Boards should invariably have a Sub-Assistant Surgeon in reserve for deputation with medicines to places where cholera or plague breaks out in epidemic form

Assistant Surgeons at Subdivisional headquarters— The Conference recommended that an Assistant Surgeon should be placed in charge of the Government dispensaires at all Sub divisional headquarters stations

# CYANIDE OF MERCURY INJECTIONS IN EYE DISEASES

Our readers are aware that at the Amritan Eye Clinic, Lt-Col Henry Smith, 148, uses largely subconjunctival injections of cyanide of mercury for the cure of many chronic inflammatory conditions of the cyclids

In Ophthalmology (July 1913) Di C B Meding, of New York, has a useful article giving his experiences at the Amritsai Chine

We quote herewith some of his remarks -

	Infected	Good results	No result
Opacities of vitreous Trachomatous keratitis (pan nus) Ulcers Ulcer hypopyon Keratitis ulcerus suppurativa Corneal opacities (recent) Keratitis parenchymatous Sympathetic Ophthalmia Episcleritis and scleritis	1 100 40 3 2 28 3 1	75 25 22 1 10 1 1 2	} 5
	182	118	9

Besides these a large number of mixed cases of what might best be called irritable eyes were similarly treated Patients with scarred corneas, diseased lids, more or less ciliary injection, blepharospasm and licity mation, conditions in which usual treatments are more or less tedrous and unsatisfactory

In all these cases the treatment consisted of a sub conjunctival injection of 10 20 minims of a 1 4000 solu tion of the cyanide of mercury in sterile water

The immediate effects differed considerbly in extent and severity. Generally speaking those showing least oedema, ocular and neighbouring, were least concited and in these a second injection achieved nothing. There was not much complaint although in some cases no cocaine was used, this, however, is not the routine nor advisable. In cases injected at the Harlem Eye and Ear Infirmary this has also been true. Applications of heat and cold, whichever preferred by patient, have been used here, but no after-treatment was called for in India Within an hour or so all discomfort disappeared.

The results were very satisfactory Bleptrospasm and lacrymation were promptly relieved. Pain in sclenitis and ulcers ceased. Those led to hospital were able to leave alone next day, so far as these symptoms were concerned. This was the cause of my awakening.

Recent corneal opacities were improved Other remedies may have done as much in these cises, but only after much expenditure of time and attention, both impossible in India

As a routine for chronic trachomas with printing, if time and suffering are of moment, cyanide injections

hold high place
In chorioiditis, retinitis, neuritis and retinal detach
ment I have indicated, the method possessing these
qualities should be valuable. The antisyphilitic value

should also be considered

In India the use of the injection was so general that there must have been included cases suitable for other treatment and no doubt some failures were due to mistaken application. The unprejudiced observer, how ever, was compelled to admit that no treatment could have exceeded the good results in time or simplicity,

and for the failure, the experienced clinician would be puzzled to suggest a more likely treatment. The best results were evidenced in those cases where destruchope here being in an instant checking of the process Most any method will preserve a sightless globe, the eventual scar being the true measure of success. In a large number of cases the injection marked a beginning defervescence

While the writer does not uige any such foutine treatment as he saw and as he would follow in practice in India, he does not consider subconjunctival injection of cyanide as a method of last resort. On the contrary he believes that a wise diagnosis in most of the severe cases of the above group calls at once for this treat-

The fact is that many cases of corneal ulceration are doomed by the lax treatment instituted On first appearance with a casual history, corneal erosions, abrasions and tiauma from flying particles of stone, metal or wood, are apt to appear innocent Cleansing and atropin are generally prescribed When in twenty four hours or more these patients return showing increased ulceration and hypopyon, the treatment which has proved of no avail is surely useless in continuation An injection at this stage commonly gives brilliant Later it, too, is mere procrastination.

The experience was of use and may be accepted as valid in that it showed availability. There were no cases of "frightful" reaction, no "fearful" results Untoward accidents such as necrosis, ecchynosis, injury of sclera were never observed. The apparent increase of tension was temporary, but it is difficult to be sure of its existence as a result. The tonometer should be used constantly before and after to make any statement useful

The adhesions often mentioned are said by Indian operators to be temporary, and this was certainly true in those where examination was made ten months of a year after injections previous to proposed operation. They would seem to be unimportant in the class of eyes mentioned

Although in a few cases the redness and oedema were more than ordinary, the symptoms belied the sen Experience at home has confirmed this feature.

What may be considered minor matters by the listener or observer are evidently important. It is, for instance, wise to be suite that the needle point is free between sclera and conjunctiva and not engaged in Tenon's capsule—wise therefore not to inject too near It is best to inject only so much in one place as will make a soft bleb, if more is needed, we should use the inferior subconjunctival space seem to stand stronger solutions than the aged A warmed solution seems least painful

The cyanide is less irritating, causes less adhesion and does not affect instruments, it is as potent and so discounts the bichloride Whatever may be the value of salt solution in chorioidal, retinal and neural affections it is not to be compared with the cyanide in the

It should be said again that these cases received no other treatment whatsoever It is indeed a point of value that these injections obviate constant attention and personal handling, both impossible in India and

The report of results in the cases mentioned may be dubbed as too general to be of use May I answer that it was the number and mixed conditions which rendered the experience fruitful. The old trachomas and printing with blinding lacry mation and spasm, the ulcers, scleritis and opacities were of the most distressing and dangerous class They made aside from glaucoma, cataract and trichiasis the bulk of all cases presenting The impossibility of daily attendance at dered one hopeless A year's work in North A year's work in New York would not give the severe cases of a week in India It is

only under such conditions that one grows familiar with a method of treatment Too often widely published opinions are based on so small a knowledge that accidents of technique and mistakes in judgments take the place of physiological process and its results

It is not necessary to become over enthusiastic, neither may one hope to try out cyanide injections in a single case. Each surgeon should test out his own usage and be governed by his own results. It is surely a sterling resource and after a careful consideration of discussions pro and con both here and abroad, in the light of my experience I must tell you that no case has been made against the remedy and that splendid results awart its wise use at your hands

### THE STORAGE OF UNDERMILLED RICE AND BERI BERI.

THE question of the storage of undermilled lice has an important bearing on the prevention of ben-ben Braddon for sample has stated that undermilled 11ce if stored in a damp place loses its protective power in preventing beir-berr

Di. E B Kedder and R R Williams have made a series of important experiments on this matter The conclusions which we herewith quote (Phil Jour of Sci, June 1913), as they are of considerable practical importance -

Undermilled tice may be stored for one year in a damp place without losing its protective powers against polyneuritis gallinarum It is improbable therefore that a nee which originally affords protection against beri-beri will lose this property by storage even in damp places

The neuritis-preventing substances or vitamines contained in rice polishings are only slightly soluble in cold 95 per cent. alcohol, since three successive extractions, using a total of 6 liters of alcohol to each kilogram of polishings, fail to remove all of the neuritis preventing substances from rice polishings

Strongly alkaline reagents, such as sodium hydroxide, ammonia, and barium hydroxide, destroy the neuritis-preventing vitamine in its free or unhydrolyzed state, and the use of these reagents must be avoided in endeavoring to isolate this substance

4. Basic lead acetate does not precipitate the neuritispreventing vitamine and a considerable portion of this substance may be recovered from the filtrate

The therapeutic properties of an alcoholic extract of rice polishings are greatly altered by hydrolysis (treatment with 5 per cent hydrochloric or sulphuric acid) The unhydrolyzed extract is not poisonous and is only slowly curative. The hydrolyzed extract is exceedingly poisonous in large doses and promptly curative in small

We have confirmed Funk's observations by isolating a crystalline base from an extract of rice polishings by Funk's method This base in doses of 30 milligrams promptly cured fowls suffering from polyneuitis galli-

Funk's base or vitamine is present in lice polishings in considerable amounts, and only a very

portion of it can be obtained by Funk's method.

(1) Because the polishings themselves are incom

(2) The greater part of this base is lost during the chemical manipulations required by Funk's method as

(a) The curative action of this base, isolated, is from twenty-five to fifty times weaker than the curative action of the original hydrolyzed extract

(b) When fowls are fed on polished rice and given a daily dose of this base in amounts corresponding to 10 cubic centimeters of the original extract, these fowls are not protected Ten cubic centimeters of the original

extract or 10 grams of polishings daily are amply suffi cient fully to protect fowls

(3) Because Funds method depends upon the use of barium lightroxide, and we have shown that this reagent

8 Two groups of substances (purine bases, choline-like bases) may be isolated from rice polishings in addition to Funk's base and are capable of partly or wholly

protecting fo vis fed on polished rice against polynenritis gallinarum, but are incapable of curing fowls that have already developed the disease. The chemical nature of these two groups of bases requires further

We have confirmed the observation of Suzuki, Shimamura, and Odake, that Funk's base may be precipitated from unhydrolyzed extract by tannic acid, but did not succeed in obtaining large amounts of this substance by this method

It is probable that this base or vitamine exists in food as a pyrimidine base combined as a constituent of nucleic acid, but that it is not present in the nucleins or nucleic acids that have been isolated by processes involving the use of alkalies or heat

The administration of unhydrolyzed extract of nice polishings to cases of adult wet ben beri, or to cases suffering from acute cardiac insufficiency, results in the prompt dissipation of o dema and relief of the cardiac

12 The administration of unhydrolyzed extract of rice polishings to cases of dry berr berr is followed by

little of no improvement in the paralytic symptoms
13 The administration of Funk's base to cases of dry beri beil is followed by an immediate improvement in the paralytic symptoms. This should remove the last doubt that dry beri beri is caused by the deficiency of this substance in the dict. It also finally proves that dry beri-beri of man and polyneuritis gallinarum are essentially the same discase

We have succeeded in curing a case of infantile beri-beri (of the wet type) by administering that portion of the extract of rice polishings represented by the filtrate from the phosphotungstic precipitate. Since this filtrate does not contain Funk's base, this is evidence

that wet beri beri is cured by some other substance
15 Conclusions 11, 12, 13 and 14 are striking confirmatory evidence for the hypothesis previously stated by Vedder and Clark that vet beri beri and dry beriberrare two distinct conditions, each being caused by the deficiency of a eparate vitamine

### SPLENECTOMY FOR MALARIA

The removal of the spleen for the effects of malaria is an operation but rarely practiced in malarial countries, but in the Archiv fur Klimsche Chirurgie (Berlin, C. I., 3, p. 573), we find an article on this subject by Dr N W He has removed the spleen in thirteen such cases himself and has collected the records of 187 other cases, ie, 200 in all The mortality 25 per cent, not very great when we consider the cachectic condition of so many of The survivois when examined from the patients six to twelve months after the operation were found to be well and " with full earning capicity , Kopylow ventures the opinion that in inaliral countries removal is desirable "ns a routine measure when large painful and immovable" When the spleen has become large and also movable-it is liable, he says, to get its pedicle twisted and it should be removed on the other hand Kopylow is vise enough to refrain from this formidable operation when the patient is cachectic and hemoglobin below 40 per cent, or if there is

general poor health or chronic bowel complaint The range of mortality he tells us in various clinics has varied from 7 to 60 per cent of case-

### THE CHINA MEDICAL JOURNAL

THE September number of this monthly is a good one

Dr J L Maxwell has an interesting note on some obscure diseases, eq, "Febrile Tropical splenomeraly '-1 very common disease in China especially those associated with ascites

Another disease not yet worked out is fistulous disease of the buttocks, not syphilitic, not tuberculous, but amorbo has been found in the Ratbite disease is another obscure malady

Dr S Cochian has a good article on vesical He quotes the opinion of V Cabot of Boston, who supports opinion in India in his statement that litholapaxy is the operation of choice, but in spite of this dictum surgeons who have not constant experience with stone do still cling to the superpubic method We quote the following useful statistics from Dr Cochran's articles, but as he tells us he only had an opportunity of doing litholapaxy six times his opinion will not carry great weight in India, where in many district a surgeon may easily do six operations in a week !

"This natural selection is well seen in a series of cases reported by Post of Beirut The moitality is as follows -

Method -	Suprapubic	Crushing	Perincal
No of cases	39	177	201
Mortality	17 9%	5 8%	3 5%
Average weight of stone (grams)	28	17	5

This is a very bad showing for the suprapubic operation and in favor of the permeal A good dea of the force of these argument is taken away by noting that the average weight of the stones runs nearly parallel with the mortality. The advantage of the perineal operation is further seen to be less when it is known that 90 per cent of them were in children below 15 years old while 52 per cent of the crushing operations weic in old men of 50 years or more

Watson and Cunningham have made an extensive compilation of operations for stone, collating 33,871 ca-cs These figures are very damaging to the supra pubic method-

Age	Suprapuble	Crushing	Perineal
1 15	7 4%	17% 16	3 3%
16 50	7 4% 11 2	16	7 8
over 50	25 4	4 4	20:2

It would seem as if the excessive mortality of the suprapubic operation must be accounted for by the fact that in many of the different series of cases only the large stones and difficult cases were treated by this route

Our own statistics of the suprapubic operation are much more favorable

This is probably due to the fact that the cares are unselected except to a slight degree, for only 17 were done by other operations, 6 being by htholapary and 11 by the perineal operation" A useful article on the "wholesale" treatment of cholera by Dr O T Lagan is good. He concludes that "L Rogers' method, hypertonic intravenous injection plus permanganate by the mouth is a simple yet efficient treatment and probably excels any other known method of cholera treatment."

We have had much to report of Relapsing fever in India of late and we note a article by Di H P Taylor on this fever in China He states that "salvarsan" is specific and should be used in dose of 3-4 decigrams, and by the intravenous route

In an experimental study of racial immunity Di H E Eggers gives the following tentative conclusions —

1 The leucocytes of Chinese apparently show on the whole a somewhat greater phagocytic power toward staphylococcus than do those of Europeans. This difference is more striking when we bear in mind that for purposes of comparison in the greater part of the work specimens of European blood were used that were apparently above par in this respect.

2 The differences in antibody content in the seium were not so striking what difference there was in favor

of the Europeans

3 A comparison of total antibacterial power of the blood, that is, of leucocytic phagocytic power plus antibody content in the serum, points decidedly in favor of the Chinese, the difference in this respect being greater than in the case of either of the two factors considered separately

### TRAMBUSTI DONZELLI SERUM IN MEDI-TERRANEAN FEVER

NATALE (S) Riv erit di Clin med, Florence, 1912, xii, 785.

THE author comments on the poor success with which all soits of treatment have been applied in Mediterranean fever, which is occasionally fatal and not rarely followed by a troublesome and prolonged convalescence Wright and also Eyre prepared anti-serums for it, but they were not effective from the point of view of cure In 1907 Trambusti and Donzelli made a serum piepared by injecting the nucleo-proteins extracted from a highly pathogenic strain of the B meliteness, and in 1908 showed that it was curative in the monkey They treated 2 men with it successfully, Morpurgo recorded 2 other successful results (1910), and Missuoli (1911) published Mission found that larger injections of the antimelitensis serum were required in cases of long standing-4 to 6 months more cases in which it was used with success have been published Natale gives an account of 3 more instances of its successful employment, in a child of 21, a man of 28, and a woman of 20, that had each been ill with Mediterranean fever for about 3 weeks, and had evening temperatures of 102° F or over treatment of the child consisted of 2 injection of 10 c em of the antiserum at an interval of 24 hours, the temperature returned to the normal by lysis in days, and the child returned to good health at once The man of 28 had 3 injections

of 10 cem of the antiserum at intervals of 24 hours, he sweated profusely, his temperature fell to the normal by crisis. The woman received 3 similar injections at intervals of 12 hours; the temperature fell to the normal by crisis, with profuse sweating. Natale notes that these were all cases of recent infection, supposing that the cases of many months' duration may be more difficult to cure. He lays great stress on the agglutination reaction (Widal's test) in the diagnosis of Mediterranean or Malta fever References to the literature are given (From Medical Chronicle, September 1913)

# OIL OF CHENOPODIUM IN ANKYLOSTOME INFECTION

"DR W. Sohuffner, in an article in the 'Nederlandsch Tydschrift,' for May 17th, entitled 'Hygiene in the Tropics and the Problems Arising Therefrom,' discusses amongst other things the treatment of ankylostomiasis medical officer of the Senembah Tobacco Co, which employs some 7,000 coolie labourers cording to his statistics, of this number some 5,000 Inboniers are annually treated for hook-He has experimented with the worm disease various drugs recommended and he finds that ol chenopodii anthelmintici is successful in 91 per cent of the cases, thymol in 83 per cent naphthol in 68, and of eucalyptus in 38 per cent Ol chenopodii is leadily taken on sugai, and at the same time is a specific against the various ascandes" (Medical Jour. of S Aprica)

The forthcoming Text-book on Medical Entomology, by Captain W S Patton, IMS, and Captain F W Ciagg, IMS, will be one of great value and importance and bids fair to be the most important book on this subject yet published. It is written for the benefit of Medical Officers, Sanitarians and Veterinary Officers and all interested in the communication of diseases by anthropods to man and to domestic animals. It is beautifully got up and the special feature will be the amplitude and excellence of the illustrations, These include 36 brush drawings, 89 full page plates. The brush drawings have been done by Mis Patton and the line ones by Captain Cragg It will certainly be a most useful book. It consists of 650 pages and costs one guinea.

### Reviews

The Muktesar Laboratory—By Major J D E Holmes, M.A., DSC, MRCVS, Imperial Bac terrologist, Calcutta Superintendent, Government Printing, 1913

This is a very interesting account of the well-known Laboratory at Muktesar, UP, for the investigation of the diseases of stock in India The little volume gives a history of this laboratory

from its commencement and a résumé of the vast amount of good original work done there Defails are given of the use and preparation of anti-rinderpest serum, anthrax serum, memori hagic septicemia serum, etc. The book is profusely illustrated and well printed

# The British Journal of Surgery—Bristol John Wright and Sons 25s, per annum

We have recently referred to this fine quarterly which seems destined to ably represent British surgery. The second issue is excellent. It begins with an account of the career of the great John Hunter.

Sil John Bland-Sutton had an admirable article on the surgery of the spleen and refers to Lieutenant-Colonel Harold Brown's well-known case of removal Di Monsarrat and I J Williams treat of extension in Rectal Cancer, and Di William Thorburn describes a case of "Sellar decompression" where a large basal glioma was removed, the patient living for three months after the operation

Mr H M W. Gray, of Aberdeen, has a short note on an improved route to the gall-bladder

Another important article is Dr Fullerton's 48 cases of nephrectomy, with only 4 deaths, Dr H Morriston Davies has a good article on the Surgery of the Lung and Pleura Mr F W Goyder, of Brimingham writes very fully of the treatment of cleft palate and most readers will read with pleasure the very interesting account of Sr Arbuthnot Lane's operative treatment of fractures at Guy's

The section on instructive mistakes is as original

as interesting

The whole number is good and it is beautifully printed and fully illustrated

# Modern Treatment of Nervous and Mental Diseases. Vol. 1.—White & Jelliffee Publishers Butterworth & Co, Calcutta

This is a large volume of over 850 pages and consists of a series of monographs by various leading American authorities. This work lays emphasis on the Psychical side of life as well as on the physical and devotes a large proportion of space to the Psychical side from its Eugenic and Therapeutic aspects.

The range of subject covered is large, dealing amongst others with heredity, the effects of immigration on the future of the American people from an Eugenic stand point and the Military rela-

tions of nervous and mental diseases

As noted in the preface, the work appeals not only to the Medical man but also to a wider audience, viz, judges, lawyers, and the intelligent layman who has at heart the furthering the important questions connected with nervous and mental hygiene

Psycho-Therapathy in its various aspects as advocated by Freud and other allied schools of thought is gone fully into and its advantages and methods of application are fully discussed

The plates and diagrams are good but in this relation Plates VIII and XV, are obviously meant to be interchanged as in their present position they have no relation to the subject-matter in their vicinity

The book is one that can be strongly recommended to not only the mental specialist but to any one interested in the progress made within recent years in a most important branch of medicine

# A Text-Book on Gonorrhea and its Complications—By Dr Georges Luis Translated by A Foerster, MRCS, LRCP Royal 810. pages XX+384 Figures 200, price 15s nett Baillière, Tindall and Cox, 8, Henrietta Sreet, Covent Garden, London

The importance of gonoribea is apt to be underlated by the layman who imagines that it is merely a trivial disease which he can easily get iid of, unfortunately in many instances the exact opposite is the case, there is also perhaps a tendency on the part of some practitioners to agree with this view. The advances in the treatment of this disease in the last few years have been considerable and the reader will find them all fully discussed in this work.

The opening chapters are concerned with etiology, pathology, symptomatology, and diagnosis. The last chapter is particularly complete and gives details of the examination not only of the urethralitiself but also of the various glands in

connection with it

As regards the various glass tests, for a practical method the use of four is recommended

A chapter on urethioscopy follows and its gient importance is insisted upon, various types of instruments are described, their good and bad points being commented upon

The author's pattern appears to be an excellent

one

The technique is also carefully described with this chapter are some very good coloured plates. The complications of the disease with their

The complications of the disease with their appropriate treatment are then discussed and the book ends with chapters on the treatment of the disease in the acute and chronic stages. The account given is full and up-to-date, all the various methods being described and criticised very fairly. It may be mentioned that neither the author nor the translator are much impressed by the results of vaccine treatment, the author saying that it is of more value for the complications than for the cure of the urethritis

The book is excellent reading and can be thoroughly recommended, the translator has done his work well and the plates, printing, etc.,

leave nothing to be desired

# Hæmocytes and Hæmic Infections.—By F W E BURNHAM 25s nett H K Lewis

THE most striking feature of this book is the beautiful microphotographs, numbering no less than 226, with which it is illustrated, which are

certainly the best of the kind we are acquainted In addition to the illustrations there are over two hundred pages of text The normal characters of the blood are first described, the classification of the leucocyte adopted being a simple and practical one Descriptions of the various forms of anamias and primary blood diseases follows Bacteria found in the blood are next dealt with, the illustrations being of sufficient magnification to show their characters A large part of the work with numerous microphotoes, is devoted to malaira, kala azar and trypanosomes, while some sprochetes are also The trypanosome illustrations are very good, but in the case of the malarial parasites, although remarkable examples of microphotography, the absence of colour makes them less valuable to workers in the tropics, where one of the modifications of Romanosky stain is now always used The book is well worthy of study

Indian Home Nursing.-By Major R. J BLACK-MAN, CIE, RAMC Simla, St John Ambulance Association, 1913

This little book was written in response to application for a companion volume to the Indian Manual of First Aid

It is intended for use of lectures and classes, but it is also likely to be useful to others called upon to nuise cases in the absence of skilled aid The book itself follows the line of the syllabus of lectures on home nursing of the St John Association The book is full of useful information, is well illustrated

Oxford Medical Publications -(1) Treatment of Diseases of Children -By G A SUTHERLAND, MD, FRCP (2) Headache -By SIEGMUND AUEBACH, translated by ERNEST PLAYFAIR, NB, MRCP

WE have read these books with pleasure first is a valuable collection of wide personal experience in the treatment of all phases of the diseases of children We have noted no subject which is not adequately and happily considered, and which does not conform to the high excellence of the test of the book The principle guiding the book is that the writer recommends that line of treatment which he has personally proved to be the most satisfactory puts it the book describes the practice of one based on the teaching of many

In the second book the writer divides headaches into migraine, neurasthenic headache, nodular or theumatic headache, headaches associated with diseases of individual organs, organs, headaches in general disease, and lastly combinations of these The subject is an important clinical one, and is clearly and ably considered in its various aspects, so that the book will be a useful one

The series is clearly printed and neatly bound, and these volumes make a welcome addition to the bookshelf

### ANNUAL REPORTS

### SANITARY. BURMA

THE report of the Burma Sanitary Commissioner is the first to come to hand It is written by Lieut-Col C E Williams, IMS The buthrate is returned at 32 1 per mille, but is probably from 25 to 33 per cent wrong, which shows the still great need of verification of vital statistics

Lieut-Col Williams writes -

"Generally speaking the low death-rates are returned by towns which have escaped epidemic disease, while the high rates are from towns which have been severely visited by these diseases. In some instances there is evidence from other sources of neglected registration both of buths and deaths, and in such cases the registration of infant deaths is more likely to be omitted than the registration of the births In other cases, as in that of Nyaunglebin and towns where an effective anti-plague policy has been in force for some time, the registration of deaths is carefully supervised by the plague staff, while no attention is paid by them to the registration of births This factor alone would, and probably does, lead to an incorrect estimate of the infant mortality, which is calculated on the year's recorded births and deaths of infants In the case of Akyab, where births registration is well supervised, the high infant mortality must be accepted, and it provides an effective reply to the generally optimistic view taken by residents of Akyab as to the reputed salubrity of that town, which is based on the extremely low general death-rate which it returns yearly, and which I have shown earlier in this Report to be fallacious

The high infant mortality recorded for Thayetmyo Town also must be looked upon as closely approximating to the truth, since this subject has been carefully studied in that town by the late Civil Surgeon, Captain R Kelsall, IMS (vide my Report for 1909)"

Cholera was widely prevalent, the ratio per mille being 94 as compared with 90 in 1911 to the personal exertion of Captain Roberts, the Deputy Commissioner, vaccination was very successful in Ma-Ubin District and the district almost entirely escaped small-pox Many other districts suffered considerably

The following note on MALARIA is of great interest -

"A careful enquiry into the outbreak, conducted in the first place by Major G H. Stewart, IMS, who sub mitted an interesting and informing report on his inves tigations, and later during January by myself, showed that the increased mortality in Minbu District was closely associated with the irrigated areas of that district, and was especially high in the areas served by the Môn Canal, ie, Pwinbyu, Mezali, Kônzaung and Legaing Registration Circles, reaching in the first-named Circle, which has a population of over 17,000, the exceptionally high ratios of 209.04 per mille in November and 240.00 in December In Legaing Circle, comprising a population of 10,000, the ratio in December was 306 per mille. It is noticed that the rise in the mortality curve companied capter in Subvivation Circle. mortality curve commenced earlier in Sinbyugyun Circle, which lies more to the east than the areas irrigated by the Môn Canal works, and that in this Circle the rise was almost continuous from the later months of 1911, and was maintained throughout the year, attaining its maximum in August with a death-rate of 71 52, whereas in the other Cucles named and in Sagu Circle, the rise does not become apparent until the returns for July are studied, and is thereafter maintained with a steady increase to a maximum in December

Further enquity elected the information that ever succe the Mon Canal was opened for use by the agriculturists of the district in July 1911, mortality has been increasing in the area served by it. Thus in the Pwinkyu group of registration circles as well as in the Sindyugyun Circle increased mortality is observed in the returns for the later months of 1911, and this high mortality continued in every district at least into January 1912. There can, I think, be little doubt, after a study of the mortality returns of the district for the two years under consideration, that the spread of malarial infection of a virulent type was directly associated with the extension of irrigation in the district But it must also be borne in mind that malaria was generally more rife in 1912 than in the previous year, and was a cause of very high mortality in the neighbouring district of Thayetmyo, where there is no irrigation by causals, as well as in Mandalay and other irrigated districts.

Investigations carried on in December and January disclosed the fact that the vast majority of the children in the infected villages had enlarged spleens, and a spleen rate little short of 100 per cent was frequently met with even as late as the end of January Adults camined by me in January raiely shewed an enlarged spleen. Most of the children were anomic and in a low state of health generally, and an advanced condition of itch was universal. Both adults and children were extremely duty in their persons and clothing, which condition was probably the result of long continued ill-health of all members of the family."

Many adults succumbed to the disease, which was in a number of instances accompanied by symptoms such as dropsy and loss of power in the leg muscles, accompanied by loss of reflexes, suggestive of berr berr

A blood examination of infected persons, carried out by Major Stewart, in January reverled the presence of malarial parasites in most cases. At that time most of the parasites observed were of the benigh type Later, in May 1913, Major Stewart again examined a number of blood films obtained from fever patients in the Pwinbyu Circle. Out of 40 films obtained from as many individuals only 6 gave negative results. On this occasion the parasite observed was of the benight type in 21 instances, of the malignant type in 5 and mixed benigh and malignant in 7. There was one quartan infection. All the subjects of examination had enlarged spleens, and all had been taking quinine.

Among the blood films examined early in January one or two reverled the presence of Spirilla resembling the Spirochata Obermieri, suggesting that relapsing fiver may have played a part in causing the high mortality. In the dejecta of some of the most aniemic patients ova of an Anchylostomum were found, creating a doubt whether Anchylostomiasis had not been an important factor in the outbreak. The history obtainable, as well as the condition of the persons seen, did not offer much support to either of these hypotheses. From a general consideration of the facts available it seems certain that the outbreak was due to mularit of several types recurring in 1912 after causing a widespiead infection and general lowering of the health of the community in the latter half of 1911."

Quinine tablets are made in Ringoon Jail were issued in pill-boxes, in 5-gr and 1-gr tablets and the Sanitary Commissioner notes an encouraging indication of the growth of a demand for quinine

It is satisfactory to find a decrease in plague and we quote the following —

"In September 1912 the Local Government prescribed a new scheme for dealing with the prevention of plague in supersession of the Divisional Nucleus scheme which was in force during 1911-12. The new scheme came gradually into force from the beginning of November Thus any share in the improvement in the plague

mortality of 1912 and 1913 which can be claimed as due to the working of the Divisional Nucleus scheme was the result of the efforts made up to the end of October 1912, when the new scheme superseded it

Under the new scheme the Subordinate Medical Plague Staff of Military Assistant and Sub Assistant Surgeons has been posted to general sanitary and epidemic duty in each of the districts of the Pegu and Irrawaddy Divisions and to Toungoo and Vamithin Districts, with a reserve of I Assistant Surgeons for Upper Burma Districts, having temporary headquarters in Meiktila, Myingyan, Magwo and Sagaing Towns. In all a staff of 15 Military Assistant Surgeons and 16 Sub Assistant Surgeons is now available for the supervision of sanitary executive work in the districts named, and for the suppression of epidemic outbreaks in towns and districts which have been the sert of repeated outbreaks of plague for many years past. The 1ôle of these Assistant Surgeons is to be that of Assistant Health Officer to the District Civil Surgeon in the smaller towns as well as at headquarters of districts, and groups of such towns will be allotted to each Assistant Surgeon as his sphere of duty. They are also available for duty in rural areas in the event of or for the prevention of the occurrence of epidemic outbreaks

The Sub-Assistant Surgeons are employed in checking and verifying the vital statistics returns chiefly in the larger towns and will be available for epidemic duty as required

The large menial establishments hitherto employed for 1 at destruction and general improvement of domestic sanitation have been for the most part disbanded, rat catching being relegated to a very subordinate position in the new scheme for plague prevention, and indeed has fallen into disuse in most places except at certain seasons of the year and for ridding markets and public buildings of rats. In future, reliance for the suppression of plague is to be placed in the general improvement of the sanitary condition under which the poorer classes live, and this can only be effected slowly and as the result of the efficient application of the sanitary regulations prescribed in the Municipal and Village Acts, and by education of the younger generation of the people."

Provincial Malania Committee—There were two meetings of the Committee in 1912 Major Lalor, the Secretary to the Committee, completed his investigations at Kyaukpyu and presented an interesting report to the Committee dealing mainly with observations on and suggestions for the prevention of malania at Kyaukpyu His recommendations for improving the station were referred to the Local Government for orders

He was subsequently deputed to Wuntho to stud, the conditions favouring the prevalence of malaria at that station

Captain W F Brayne, 1 Ms, and Captain 5 C Chuckerbutty, 1 Ms, continued to serve in the Saintary Department as special Plague Medical Officers, the former in the Pegu and the latter in the Irrawaddy Divisions. Under the new scheme for plague prevention their duties include the supervision of all saintary and epidemic staffs, their function being akin to that of a Deputy Saintary Commissioner in charge of a limited area. Both officers did excellent work. To them and to Major G H Stewart, who gave me valuable assistance by supervising vaccination work and investigating epidemics, my best thanks are duc

### BURMA HOSPITALS

Colonel Evans, IMS, who has succeeded Colonel Calluthers, IMS, IS I G of Civil Hospitals, submits this report

There are 269 hospitals and dispensaries in Burma and the patients in and out-door aggregated over 12 million. It is satisfactory to see

a marked increase in surgical operations, now In Rangoon where the great General Hospital is we are not surprised to find there were 446 abdominal operations, but it is clear that more is required to put this fine hospital on 1 par with modern advance and with hospitals in the other provincial capitals

"Rangoon General Hospital -This hospital is now very nearly fully equipped and finished. This year the Hospital Mortuary and Laboratory buildings were completed and are now in full working order The year under report was rather an unfortunate one for this institution Major Barry, the Superintendent, was away on leave for 81 months, his place being taken by Major Stodart Captain Crump, the Resident Medical Officer, had to be sent away on sick leave, and Captain Dougan, the Pathologist, died from the effects of blood

poisoning contracted while performing his duties
"The nuising staff is supposed to be still insufficient and the matter is held in abeyance owing to there being no proper housing accommodation for such additional staff as might be considered necessary, the present quarters being only just sufficient for the existing staff Hospital accommodation for the patients is also found to be insufficient, especially during the monsoon months, as over sixty beds are occupied by very chronic and almost incurable cases which might rightly be housed in a public infirmary. It is quite undesirable that any portion of this hospital should be converted into Special

Departments for Maternity of Puerperal cases
"The total number of in door patients has shown a
decrease of 199 This decrease has occurred mostly among males and is attributed to the large number of operations performed, chiefly abdominal, necessitating a much longer stay in hospital. The daily average number of in-door patients, however, was 426, showing an increase of 56 over the figures of the pieceding year. "The present Commissioned Medical staff is considered by the Superintendent to be approximately and the first start of the figures."

by the Superintendent to be insufficient to give the time and care demanded by the modern advance for investigation and diagnosis, especially of medical diseases, and in this I agree The setting apart of wards for purely medical cases, which is desirable, cannot, it is found, be effected until an infilmary for the chronic cases, previously referred to, has been established. The appointment of at least one pure Physician for medical

cases is essential

"The total number of out door patients was 74,930 in
1912 as against 65,475 in 1911. This increase of 9,455 prtients was almost entirely among males average number seeking treatment has now reached 519, The daily an increase of 86 over that of the previous year. This department is clearly overstrained and a casual visit will show what a very busy place this portion of the hospital presents of a morning. The large increase amongst Burmese women is satisfactory."

# HOSPITALS, BIHAR AND ORISSA

COLONAL F J DRURY, Inspector-General of Civil Hospitals, Bihai and Orissa, submits the first report for 1412, on the hospitals and dispensaries of that fragment of old Bengal which, on 1st April 1912 became the new province of Bihar,

We made the following extracts -

"The number of dispensaries on the list is by no means sufficient for the medical needs of this province, for instance, taking the population according to the census of 1911, in the Muzaflarpar district each dispensary there serves a population of 237,126 persons, in the Suan district the proportion is one to 152,652, in the Champaran district one to 159,032, and in the Ranchi district one to 126,138 There is, therefore, much need

for more dispensaries in this province The deficiency in this respect is also referred to by several Civil Surgeons It is one of the primary duties of District Boards to provide facilities for medical aid to the people I find from the Civil Surgeons' reports that proposals for the establishment of new dispensaries have fallen through in certain districts for want of funds and in some they are still under consideration Civil Surgeons are, I am glad to say, taking great interest in the matter and I think it will be possible to report some additions to the list of dispensailes during the cullent year the District Boards will now be supplied by Government with large funds by the surrender to these bodies of the whole of the Public Works cess, that is, then income will be increased by 23 lakhs of rupees, on the principal condition that a substantial part must be spent on medical and sanitary purposes, the medical needs of districts will, it is hoped, receive the required attention

"Of the more important operations, it may be men tioned that there were 3,249 extractions of the lens for cataract, 52 abdominal sections (Laparotomies), 20 Ovariotomies, 103 Litholapaxies, 82 Lithotomies, 114 operations for radical cure of Herma, 60 operations for strangulated Herma, 51 for Abscess of the Liver, and 194 for Scrotal tumour Most of the last named opera tions were performed in the Cuttack General Hospital, the tumours weighing from a few pounds to 50 pounds

"The largest number of operations of all kinds (4,132) were performed in the Bankipore hospital followed by the Patna City Hospital with 3,731, the Bettiah hospital with 3,210, and the Gaya Pilgrim Hospital with 2,792

"The following officers performed a large number of important operations in 1912, for which they deserve high plaise — Lieutenant Colonel C E Sunder, M.D., IMS (Patna), 778, Major M H Thornely, IMS (Shahabad), 438, Lieutenant Colonel R H Maddox, M.B., IMS (Gaya), 375, Captain F P Connor IMS (Gaya), 338, and Assistant Surgeon Rai Sahib Tripura Chaian Guha (Bettiah, Champaian), 395

At Headquarters of Subdivisions there are at present no medical books for reference by Subordinate Medical Officers in cases of doubt in dealing with serious illness or in medico-legal cases. To meet this want I recommended to Government that a small collection of up-to date medical books frequently required for reference be supplied for the purpose I am glad to say that this has been sanctioned by Government The libraries will

come into existence during the current year

"Owing to the creation of this province new cadres of Indian Medical Service Officers, uncovenanted Medical Officers Civil Assistant Surgeons, Military Assistant Surgeons, and Sub Assistant Surgeons were formed in Bengal in consultation between the Governments of Bengal and Bihar and Orissa Although I was not present at the time, I consider the allotment made of the officers to this Province was a very fair one On the 1st of April 1912, there were in this Province 20 Indian Medical Service Officers, including myself, one uncovenanted Medical Officer, 55 Civil Assistant Surgeons, 4 Military Assistant Surgeons, and 202 Sub-Assistant Surgeons I have had the pleasure of working with 12 of these 20 Indian Medical Service Officers in the Medical College of Calcutta Of the 55 Assistant Surgeons nearly every one is personally known to me, about 90 per cent of these have been my pupils at the Medical College of Calcutta, and many of them showed conspicuous talent during their student career

"The great want of this province is a suitable hospital for Europeans The matter was discussed in 1912 and is still under consideration It is proposed to build a hos pital and sanitarium at Ranchi, where the climate is very suitable for the purpose A site for the latter has been selected At Bankipore necessary provision for a Euro pean hospital will be made in the scheme for the remodelling of the Patna Medical School and the Bankipore General Hospital, which is now under the Bankition of Government."

## Correspondence

### PROVINCIAL MEDICAL CONFERENCES

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SII,—I can't the countery of space in nonicolumns for the vent of the desirability—or I would rather say the necessity—for annual provincial conferences for Civil Surgeons. It is hardly necessary at this time to dilate on their general advantages. Conferences of Commissioners of Divisions and Heads of Departments of the Police Department and of Divisional Magistrates have been held for some years with beneficial results at least I have never head anything to the contrary. Sin Andrew Firser, the retired Leutenant Governor of Bengal to whom the credit of initiating the system belongs used to say that if they accomplished nothing more, he thought they were justified on the ground that they offered an unique opportunity of enabling men of the same service to make one another is acquaintance. Whis should the Civil Medical Department be behind the time? We have no important political questions to discuss, but many comparatively minor, though none the less interesting, questions could be raised and settled and much useful interchange of ideas take place. The sitting of the Royal Commission at the moment lends puriticular point to the suggestion. Civil Surgeons at present work in water tight compartments. The I G C Hospitals would open the proceedings and retue till it was necessary to close them, the senior officer present taking the chair in his absence. Discussion would be free and untrammelled, but to prevent its travelling too far afield, an agenda paper would have first to be drawn up and circulated after subjects had been called for beforehand. A time limit might be set of 10 minutes for any original papers and of 5 minutes for individual replies. This would tend to discourage oratory and encourage business. Our busy department I Chief would be relieved of much correspondence, and suggestions which have to be made by post and circulated for information and reply and subsequent crystalization, a process involving many weeks could be settled in perhaps double the number of minutes. The conference which might be li

I am, yours faithfully, E A P NEWMAN, MD, LT COL, IMS

Alupore, October 29th, 1913

[We strongly support Lt Col Newman's remarks and commend them to the notice of Administrative Medical Officers —Et., I M (I)

### CASE OF SNAKE BITE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

A son of the Thikin of J—, was strying in the Charitable Hospital Deoli, where his father was an in patient. Sleeping one night on the verindah on a charpoy he felt something moving underneath it and thinking it was a frog he put down his hand and received a snake bite on the indexinger, he immediatly shouted out and receiving both help and a lamp he managed to kill a large Krait just beside the charpor. The man refused all and not even allowing the bite which was easily seen to be lanced by the Sub Assistant Surgeon who lives in the hospital. This occurred about 4 o clock in the moining I saw both the man and the snake about 10 yy, when he was suffering from no symptoms whatever nor did any symptoms subsequently appear either local or general. I have no doubt about the man being hitten as I saw the marks on his finger nor have I any doubt about the kind of snake.

Yours, etc.

DEOLI, }
Rajpulana

R CRAWFORD BOYD, 1 RCS (I), DPH, IMS

### IODOFORM AND ITS EVIL LIFECT

To the Editor of "THE INDIAN MEDICAL GAZETTE"

Sil,-I think the following case may be of some interest to your readers

A Hindu male, aged 41, occupation service, came to me, with an "abscess" on the gluteal region, right for treatment. This was opened on 24th June 1013, and along with other

antiseptic diessings "Iodoform' was spinkled on the riving surface. Next maining the patient was attended to when it was found that he was restless and the pair was severe on the affected pair. Fever, severe headache maiser, quick pale and mental disquietude were the constitutional symptoms. On opening the wound nothing very peculiar was detected on the operated pair itself, but an extensive enthema, attended with handness and pair was noticed on the surrounding surfaces. I could not at hist fancy what it was due to. But on the third day when marked exema of varying degrees and character was noticed all around it occurred to me that the symptoms might be due to Iodoform. The diessings were removed and Iodoform discontinued. The progress of symptoms was attested and the patient was brought to an uninterrupted recovery.

Remails—Idiosynciasy to the use of any particular form of food and drug is not a negligible factor to be overlooked in treating a case. It is, however, very difficult to know before hand what particular method of treatment is infurious to any particular individual unless the patient gives the warning at his own accord. These occurrences are, however, very are It is not definitely known how Iodoform causes these symptoms which were, of course, very mild in this particular case, but these might aggravate if the application of Iodoform was further indulged in Discontinuance of Iodoform, coupled with the free use of 'Oil Richin' locally acted markellously and ariested the progress of the untoward symptoms. On enquiry the patient said that he had similar trouble once before after use of Iodoform dressing

I beg to temain,
Sit,
Your most obedient servant,
SATKARI GANGULI,
SUB ASSISTANT SURGEON,
Tandoo Forest Road Despensary

NAGRAKATA P O, DIST JALPAIGURI, The 18th July, 1913

### VITAL STATISTICS IN BENGAL

To the Editor of "THE INDIAN MEDICAL GILLETTH"

SII,—May I can't the hospitality of your columns to insert an aircle on "Vital Statistics" with regard to the system of the registration of births and deaths at present carried out in this country. The subject is considered to be of some importance by the medical men employed in samitary work and this has prompted me to write this article which I hope will be of some interest to your readers.

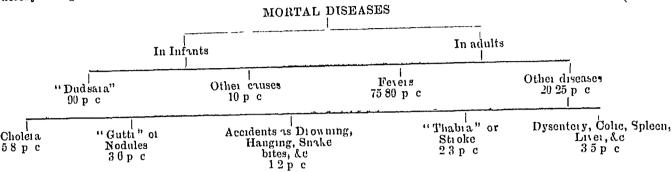
### VITAL STATISTICS

Difinition and Utility—Vital Statistics may be defined as a complete and accurate registration of briths and deaths. Then accessity and use are patent to all, who are inferested in the matter as they serve as a basis for so many calculations, and it is necessary that the figures should be reliable. By careful and correct registration the limits of mortality and other interesting points of particular diseases can be determined. Now a days, the previous diseases can be determined. Now a days, the previous of antalian in villages is determined from the collection of vital statistics. The above topic has for sometime past been engaging the serious attention of Government as is evidenced by Municipal Department Resolution No. 445 Sanitation, dated the 7th behavily 1913. In the biref space of a magazine article it is impossible to deal with the subject as fully and exhaus tively as it deserves and my only aim has been to point out some of the main defects of the system as it is carried on in this province. My work in the Dacca District has led me very often to correct the vital statistics of our villages and it is a matter of regret to all that the measures taken by our benigh Government to ensure the correct registration of births and deaths on which many departmental measures are looked upon with considerable suspicion as will be borne out by the following remarks on registration as will be borne on which the present system of the registration of births and deaths is carried on is faulty. I can testify from the experience I obtained whilst employed in the work of correcting vital statistics in the Dacca District.

Collection and Defects Thereof—So far is I have been able to gauge the matter I am led to suppose that the village chowledges or witchmen are responsible for the mistakes in registration. These people are required to register occur rences of births and deaths in their respective areas and submit them to the Police Station or Outpost once a week. These chowledges or witchmen are mostly illiterate people who have been supplied by Government with books to record vital occurrences in. They are supposed to know all about them or to go from house to house to do the registration. Some village watchmen collect their statistics by irregular visits to different parts of their area, such visits being generally made the day previous to that of their attendance at the police station.

cases occurring in their families, and for the cases which occur in distant parts of their jurisdiction they depend on the reports of the people which are mostly uncertain and unreliable. reports of the people which are mostly uncertain that differentiable. These village watchmen seldom care to go systematically from house to house to register vital occurrences and everybody's business becomes nobody's business. The illieverybody's business becomes nobody's business. The illiterate villagers sometimes keep these occurrences strictly terate villagers sometimes keep these occurrences strictly private for reasons best known to themselves. A few of such reasons will be detailed hereafter. Great difficulties are encountered by the village watchmen in registering these occurrences as they are mostly illiterate persons usually they take the help of some other person in the village to fill in the record, or during their attendance at the police station, ask the 'Dafadai' (their immediate superior) to do the work for them. This functionary knows the verificular whereby to register all the births and deaths which he (the

Diseases - The greatest and most regrettable errors are found as regulds discases from which the deceased suffered I can state from my experience that the causes of death as I can state from my experience that the causes of death as returned in the village registration book are vague, inaccurate and full of mistakes and the real causes are rarely stated. It is only after wading through a mass of verbiage that I could get the real history and could diagnose the cause of death and often it was a hard task to get any clear history of the symptoms if some days had elapsed from the date of death. I have found that the village watchmen return in their registration book about 75 to 80 per cent of cases of death as due to Ferer. If one goes through the "Hatchita" of the registration book of these village watchmen, one invariably finds in the column of the cause of death only a few diseases which can be tabulated roughly of death only a few diseases which can be tabulated roughly as in the following table -



chowledar) has collected and as far as his memory serves reproduces In this way some details are cleanly enased from the memory and some are incorrectly put down Error generally made with regard to the follows. tre generally made with regard to the following parti culais .

- (1) Date of occurrences
- (2) Buths
- (3) Deaths
- (4) Diseases

### LEPORS

Date of Occurrences -I have found in the course of my experience that in 90 to 95 per cent of cases, the date of occur rences are not correctly put down, the reasons being

(1) That village watchmen generally register the buths and deaths after the lapse of some days from the event, and the date of a both or death is frequently registered as having taken place sometime in the week in which the chowkidir had come to know of it

(11) That illiterate villagers cannot reproduce exactly the

date on which the particular event occurred

(1) Registration of births is omitted in 15 to 20 per cent of

(ii) Cases are sometimes registered as births where there was nothing of the sort and hence—false entries 'are found (iii) Birth of a girl is sometimes registered as that of a boy

and vice versa

(iv) The name of the head of the family is frequently put down instead of the name of the father of the child

down instead of the name of the father of the child.

For these errors the village watchmen are mostly responsible as they do not call from house to house to enquire about these vital occurrences. The difficulty is enhanced by the fact that superstations of a serious nature run lampant in backward villages. I have found in the course of my experience that in some villages there is a strong belief that if a birth is registered, the child is sure to die soon, and so if any member of the family is questioned on the matter, he is sure to give a misleading answer. Secondly, if these villagers are forced to register, they will invariably give the wrong in formation, thus as they believe preventing the early death of the child. Fortunately, this notion is not general but only occurs in villages where illiterate persons form the majority. occurs in villages where illiterate persons form the majority

(1) Omission to register deaths takes place in 8 to 10 per cent of cases

cent of cases

(ii) Cases are sometimes registered as deaths where no such thing had happened

(iii) One person dies but the name of some other person of the same family is entered.

The fault in these cases is attributable to both the village watchmen and the villages. I have noticed that in back ward villages there is the same dislike in referring to a death as in mentioning a birth. In one or two villages I have found there is a tirm belief among the uneducated cultivators that if the name of the deceased is uttered in vain or noted down in official documents, eq., in the "Hatchita" of village chowlidars it is a proof of the deceased being guilty of some unknown crime and his soul is supposed not to rest in peace

Villagers and village watchmen ascribe a large proportion of Infantile deaths to "Dudsara," i.e., refusing the breast What are the diseases which chiefly constitute "Dudsara" and what are the principal causes responsible for such a large infant mortality. These in my opinion can be accounted for by mismanagement of the infant during the puriparture. Lack of proper and regular treatment, ill feeding direct exposure and the unhygienic conditions under which the infants are reared induce malnutrition and bronchial troubles. The cord often becomes septic and leads to septi cemia and infantile tetanus or trismus neonatorum. Under "Gutti," ie, Nodules are included small po, measles chicken po, and other diseases characterised by the appearance of rashes or spots. It is only the advanced class who can differentiate one from the other and enter each of who can differentiate one from the other and enter each of these diseases under its special name. The term 'Thabra' corresponds to the English term 'Stroke," meaning sudden death or Syncape. It is sometimes called 'Batash' or wind implying that as a tree is brought down by a sudden gust of wind so a man dies as the result of a stroke or gust. In some villages, cholera is called "Sirkari Berum"—Government disease. Hereby "Sirkari" is meant 'pertaining to all' and it is assumed that the disease will affect all, i.e., become epidemic

High percentage of Fever -The village watchmen generally then percentage of recer — The virings watchinen generally put down most of the cases of deaths as due to Fever, for to them it is a convenient term and probably when they cannot think of any other cause they simply enter the term "Fever". To their minds fever is merely high temperature and as most cases have this symptom, this cause of death is the usual one. They are unable to distinguish between the various diseases of which fever is a symptom. Moreover illiterate villagers cannot help with information because usually the deceased had not been attended by any medical man. From the high percentage of fever deaths in the village watchmen's registra tion books, one may easily be led to believe that all or a major portion of them are cases of Malarral fever, but in reality it is not so The villagers generally divide malvial fevers into two classes splenic fever—cases of fever with splenic enfrom the former they register as due to "Spleen" and from the latter as "Fever" From this it would appear that death from malarial fever is not so life in villages as is commonly supposed, and in fact it is found to be so

supposed, and in fact it is found to be so

Suggestion—From the foregoing it will be seen that the manner in which vital statistics are collected in villages makes them more or less a guess work and a mockery of the name and in my humble opinion such methods should be discontinued as fir as practicable. It is better to disbelieve them altogether than to obtain false figures which lead to wrong conclusions. Of course it is evident that accuracy cannot be made use of so long as the common people keep themselves aloof from these matters and as long as persons who register these occurrences of births and deaths are illiterate. The two following suggestions if carried out would the The two following suggestions if carried out would

help a good deal

I Compulsory registration of all births and deaths
In towns people have to report these occurrences to the
Vaccination Depot or at other suitable places fixed by the
Municipality and a penalty is levied for each omission. The
same rule should be enforced in villages, where people should

be obliged on pain of fines to report such cases to the chonki dars of at any other place prescribed for the purpose Tashil Panchy ats should be instructed to enquire about these occurrences and report all which the chowledge has failed to occurrences and report all which the chowkidar has failed to record. They can easily ask each headman of the family about vital occurrences in their respective houses on their quarterly tax collecting visits. The customs of village people will often be of assistance in the detection of these cases. For example, in some villages, I have seen that where a birth has occurred, a spear or other long weapon is fixed in the open courty and of the house or thorns and branches of trees placed in the four coincis of thelying in room, the purpose probably being to prevent the entrance of ghosts and demons which are generally supposed to select their victims from newly born infants. Various customs and rites similarly follow the death of some member of a family and the careful observation of these, will help in the matter of proper registration. At present the vaccinating staff are relied upon to enquire about these occurrences and correct the statistics but they have not these occurrences and correct the statistics but they have not the time at their disposal to do so, besides, their vaccination work takes them chiefly to places where small-polarges

II The 'Cause of Death' should be registered by the com

mon village term, in the same language in which the villagers report and if possible the duration of the disease should be given also. The information should be obtained from an additional of the female and should not be recorded from adult member of the family and should not be recorded from

common report

I have seen some cases in which chowkidais and others in order to record the cruse of death correctly and in chaste ver nacular sometimes enter the name of a disease not even allied but entirely continuy to that reported by the villagers. These but entirely contrary to that reported by the villagers These village terms for discusses, could be translated by local medical practitioners and thus the true "cause of death" can be more accurately determined

> Yours, etc., BYOMKES DAS GUPTA,

Sub Assistant Surgeon, Pal sey (Pabna)

July 1913

### CASE OF GLUTEAL ABSCESS

To the Editor of "THF INDIAN MEDICAL GAZLTTL

Sir — Abscess Gluteal caused by a foreign body treated at the Ponneri Dispensary, Chingleput District, by R Strinivasa

Pillai, Medical Officer

A woman named Kamatchimma, aged about 25 years, Hindu, married, came to dispensary from a village called Minjur about 7 miles from Ponneri, with an "abscess of the thigh" of three months' duration. I asked the midwife to examine her and send for me. It was an "abscess of the left Ischium" and it was fluctuating. On incision a thin samous discharge oozed out. When I began to scoop the abscess cavity, a straight thin hard substance was felt. I suspected it to be a bone and put out of court the idea of a round worm since it was hard. I examined the rectum and found it had no communication with the abscess cavity. The A woman named Kamatchiamma, aged about 25 years, found worm since it was nard. I examined the feetum and found it had no communication with the abscess cavity. The opening was enlarged and with my thumb and index finger. I extracted the foreign body. It was a coconnut bloom stick with a white stained cloth wrapped at the end. The stick was about 4 inches long. The patient was not pregnant and the stick must have evidently been introduced with the intention of producing abortion. tion of producing abortion

R STRINIVASA PILLAI, (Sd) PONNERI. 1st grade Sub Assistant Surgeon, 2nd October 1913 }

### LOCAL ANÆSTHESIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SII,—Lately I have been using "Quinine and Urea Hydrochloride Tablets' of Messrs P D & Co for local an esthesia. They being non toxic I find very convenient especially as they require the least care. I removed a big sebaceous cyst root and branch from the cheek of a Nagar lady with a ½% solution of the "alt. Both myself and the patient had every reason to be fully satisfied with its action.

with its action

Encouraged by that result I injected a 1% solution in the back of a highly placed lady for removing a foreign body that could easily be felt under the skin and waited for full Intercound civily be ten under the skin and waited for the \$\frac{1}{2}\$ of an hour in order to allow the injection to have the fullest effect (for the \$\frac{1}{2}\struct \solution took nearly 30 minutes to establish the an esthesia). But on beginning to cut, I found myself in a false position. The patient was wincing and fidgetting and smarting with pain. The result was that the attempt had to be given up and the foreign body had to be left where it

was
Will any one of your readers who has used the salt much more extensively than my self explain the cause of my failure?

It may mention by the way that the foreign body was non-other than a piece of needle. The patient was the subject of pleurisy with efflusion with some tuberculous affection of

the lung
I must add that some amount of anisthesia had supersened, but it was so imperfect that the operation could not be proceeded with without considerable pain to the patient.
One more point I may mention. There was nothing picular about the pair injected except perhaps that it was a bit obdenatous though there was no pitting whatever to be detected on pressure. The patient lying on the left side the injection was made across one of the interspaces and exactly along the length of the foreign body to be removed the patient continuing to be down on the left side all through the attempt at removal. About two minims of the fluid were injected.

I am unable to explain the varying result of the two injections

LUNAWADE. REWA KINTHA The 3rd August 1913

I beg to remain, Sir, Your most obedient servant,
G V KHIR State Medical Officer

### THERAPEUTIC AND LITERARY NOTICES

THE Combridge University Press announce the carly pub lication of a book by Dr. Jaques Loeb head of the Experimental Biology Department of the Rockefella Institute—on the subject of Artificial Pathenogenesis and Lertilization

### ' KEPLER" MALT EXTRACT WITH GLYCLRO **PHOSPHATES**

"KEPLER" Malt Extract with Glycerophosphates is now issued by Messis Larroughs Wellcome & Co. Each fluid ounce contains gr. 4 of calcium glycerophosphate, and of polassium sodium and magnesium glycerophosphates, gr. 2 each. For these, "Kepler" Malt Extract forms an approprinte und palatable vehicle, having, as well, a definite food inlue of its own

While in no sense possessed of specific virtues, glycerophos pliates have been found distinctly beneficial in enfectled conditions of the nervous system, resulting from worry, from overwork, and from exhaustion, as well as in such apparently diverse conditions as anaemia, unticaira, and incontinence of unine. In osteo malicia and nickets, the calcium salt is valuable and in the treatment of epilepsy by means of a salt free diet the administration of glycerophosphates in conjunction with bromide is strongly recommended by authorities

PROFFSSOR DR MADZENAVLI lend a paper recently on a new remedy for syphilis, which he calls MFRI USAN—which is taken internally in the form of tablets. It is said to have no harmful effect on the digestive organs. Yerlusan is a

then filter with the form of tables. This said to fist a scompound of Mercury and Albuman

The October Number of Science Progress, edited by Su
Ronald Ross, has an important article by Su C Paidey
Lukis I M S, K C S I, on the Sanitary Awakening of India
Sir Oliver Lodge discusses a dam, Mr Stelton has an article
of Carloscopic time ether acticles are on the Pultdown Skull on Geological time, other articles are on the Piltdown Skull Darwinism, heredity, &c It is a fine number and worthy of the attention of our readers

MESSRS BOCHRINGER and SOLHNI send us literature on the value of their preparations Arspnoiserratose, and Iodoferratose, their Calcutta Agents are Messrs Huden

feldt & Co., Pollock Stieet, Calcutta Agents are messes Mainterfeldt & Co., Pollock Stieet, Calcutta

MR C BAKER 244, High Holborn, London, WC, sends us a description of his new Travelling Microscope (designed by Sir Ronald Ross, especially for service men)

"The tripod base has a spread of 7 inches and the instrument is exceedingly steady both in the vertical and inclined

positions

The fine adjustment is actuated by milled heads situated on either side of the limb, in which position they are more protected than in the old model where the milled head was placed at the back

placed at the back

The stage measuring 3½" x ¾ is exceedingly rigid, and is capible of callying a very efficient mechanical stage (as figured), giving movements of 1" in the vertical, and 1½" in the holizontal directions. It is designed to carry (a) a rack and pinion focussing centring substage (as figured), (b) a spiral sciew focussing substage, or (r) a plain tube of the universal size (1½"). With (a) a high power condenses of darkground illuminator for examining living bacteria etc., can be used, which is an advantage very few portable micros copes can claim. copes can claim

The Stand with 2 eyepieces, condenser, nosepiece, 3 objectives, and mechanical stage, can be packed away in i leather or metal case measuring 9"×4½"×4""

# Service Notes.

### GOOD SERVICE PENSIONS

The Gazette of India of 13th September 1913, publishes the announcement of a number of these pensions, conferred upon officers of the I M S These notifications are some what late in the day, the oldest of them being over eight years old, indeed, its recipient died more than eight years ago, and the most recent being over two years old. The grant of such pensions to Surgeon Generals Bomford, Browne, Benson, and Grenny, was gazetted at the time, but in all Benson, and Greeny, was gazetted at the time, but in all four cases has now been considerably ante dated The other The list is as follows seven are new

Surgeon General W McConaghy (Bo), from 16th June 1905, v Bockey, R

Surgeon General G Bomford (B), from 4th September 1905, v McConaghy D Surgeon General W R Browne (M), from 25th March 1907, v Reid, R

Surgeon General P H Benson (M), from 1st April 1908 r Bronne, R

Surgeon General J P Greany (Bo), from 22nd May 1907,

Colonel D Wilkie (B), from 1st October 1908, v Greany, R

Colonel H McKay (B), from 2nd April 1909, v Wilkie, R Colonel R Macrae (B), from 3rd December 1909 v McKay, R

Surgeon General H W Stevenson (Bo ), from 1st Much 1910, v Maciae, R
Surgeon General A M Crofts (B), from 7th April 1911, v

Hamilton, R
Surgeon General W B Banneiman (M), from 26th July

1911, v Benson, R

These pensions amount to £100 a year. They are bestowed, with very few exceptions, only on administrative officers, and are not tenable along with the increased pensions given to office is of administrative rank, who complete their tenune of office. In most cases, therefore, the recipients vacate them on retirement, after enjoying them for, at most, few years. Indeed, they are valuable rather as a mark of appreciation, and as an honour, than for their pecuniary value. Two of the officers gazetted above, Surgeon General McConaghy and Colonel Macrae, enjoyed them for less than three months. These pensions amount to £100 a year

In the rate cases in which such pensions are bestowed upon officers who have not attained the administrative grades, and have not gained the increased pensions of these ranks, these have not gamed the increased pensions of these lanks, these Good Service Pensions are tenable for life. An officer on the retired list of the Bombay Medical Service, Brigade Surgeon James Arnott, received one of these pensions on 2nd March 1896, and as he retired as Brigade Surgeon, has now drawn it for nearly eighteen veris. One was also con March 1896, and as he retired as Brigade Surgeon, has now drawn it for nearly eighteen years. One was also conferred upon Sir Joseph Bayrer, who retired as a Surgeon Major, from 25th October 1908, after he vacated the Presidency of the India Office, Medical Board, and he drew it till his death on 21st May 1907. Presumably the pension now conferred on Surgeon General W. McConaghy was granted because he was unable to complete his tour of office in that rank. He became Surgeon General on 30th October 1902, retired on 20th June 1905, and died on 3rd September 1905.

As a Good Service Pension was conferred on Sir C P Lukis, the Director General, from 1st January 1910, all four Surgeon Generals of the 1 M S are now in receipt of these pensions. The only other officer in the Service who holds one is Brigade Surgeon Arnott

COLONEL CHARLES FANCOURT WILLIS, Bombay Medical Service, retired on 1st October 1913 He was born on 22nd May 1854, and took the M R C S in 1875, the L R C P Edinburgh, in 1877, and the M B of Durham in 1879, subsequently becoming M. R C P, Edinburgh, in 1882, and M D Durham in 1887 He entered the I M S as Surgeon on 31st October 1879, becoming Surgeon Major on 31st October 1891, and Lt Colonel on 31st October 1899, was placed on the selected list on 24th May 1904, and promoted to Golonel from 14th November 1908 He was services comprise the Egyptian campaign of 1882, when he took part in the battle of Tel el Kebir, and the forced march to, and occupation of Unio, receiving the Medal with clasp and the khedic's bronze star the North operations in the Kurram Valley during August and Septem 1837, gaining the medil with two clasps, and Tirah, of the Khamana dehle and action of 7th November 1897,

and in the operations against the Khani Khel Champkinnis, was mentioned in despatches in G G O No 244 of 1898, and got another clasp to the frontier medal

AR I Vol X, para 50, has been read by some I M S officers to mean that they can demand a free passage if proceeding on study lerve This was never the intention, and I A O 529 of 29th September 1913, finally disposes of that

CAPTAIN KENNETH WILLIAM MACKEN/IF, IMS, 10 signed his commission from 231d August 1913. He was born on 16th November 1879, educated at Edinburgh University, where he took the degrees of M. B., Ch. B. in 1905, and entered the I. M. S., as Lieutenant on 1st September 1905, becoming Captain on 1st September 1908. He served on the North West Frontier of India in the operations in the Momand country in 1908, receiving the medal and clasp. He was medical officer of the 30th Panjabis, and for the past year, since 23rd August 1912, had been on leave, pending retirement.

CAPTAIN GREER EDMUND MALCOLMSON, IMS, resigned his commission from 2nd September 1913. He was born on 30th September 1578, educated at Owen's College, Man chester, and Guy's Hospital, took the MB London in 1902, and the MD in 1904, and entered the IMS as Lieutenant on 1st February 1906, becoming Captain on 1st March 1909. The Army List assigns him no war service. He was medical officer of the 126th Biluchistan Infantry, and had been on furlough since 6th May 1912. furlough since 6th May 1912

LIEUTENANT COLONEL CRIMMIN, VC, CB, CIE, having decided to return to India for promotion, the compensation pension of £100 goes to Lt Col H C Armm, IMS, who retued in June last

CAPTAIN J TAYLOR, IMS, is appointed to hold charge of the office of Assistant Director, Bombay Bacteriological Laboratory, in addition to his own duties, during the absence on leave of Captain W D H Stevenson, IMS, or until further orders

CAPTAIN P M RENNIE, MB, IMS, is appointed to officiate as Health Officer and Civil Surgeon of the Notified Aies, Delhi, with effect from the date on which he assumes the company of the c charge and until the return from leave of Lieutenant Colonel H Ogilvie, I M S

THE services of Major A C MacGilchrist, IMS, are placed temporarily for special duty under the orders of the Director General, Indian Medical Service

MAIOR T S B WILLIAMS, Indian Medical Service, an Agency Surgeon of the 2nd Class, as posted as Civil Surgeon, Dera Ismail Khan, with effect from the 1st September 1913

Major J Husband, Indian Medical Service, an officiating Agency Surgeon of the 2nd Class, is posted as Civil Surgeon, Wano Agency, with effect from the 12th September 1913

MAJOR DE V CONDON, Indian Medical Service, an Agency Surgeon of the 2nd Class, on tetuin from leave, is posted as Civil Surgeon, Hazara, with effect from the 26th Septem ber 1913

THE services of Colonel R Robertson, MB, IMS, are placed permanently at the disposal of His Excellency the Commander in Chief in India, with effect from the 30th June 1913

THE services of Colonel R W S Lyons, MD, IMS, are placed temporarily at the disposal of the Government of Bombay, with effect from the 1st November 1913, vice Surgeon General Stephenson, CSI, on leave

MILITARY ASSISTANT SURGEON S J V FOr made over charge of the Barisal Jail to Additional District Magistrate Mr J H Lindsay in the afternoon of 6th October 1913

Assistant Surgeon Satish Chandra De made charge of the Jessore Jail to Military Assistant Surgeon S J V

MILITARY ASSISTANT SURGEON R A BOERMEL made over charge of the Noakhali Jail to Military Assistant Surgeon F H Gleeson in the forenoon of 7th October 1913

Assistant Surgeon Ginesh Chindri Mitla made over charge of the Khulma Ind to Assistant Surgeon Rus Salub Satish Chandra Basu in the forenoon of 7th October

MILITARY ASSISTANT SUPCEON F H GIFESON made over charge of the Dinajpui Jail to Deputy Magistrate Babu Dasanta Kumai Das in the afternoon of 3rd October 1913

DEPUTY MACISTRATE BABE KSHIROD LAE MURHAPII made over charge of the Dinappur Ital to Military Assistant Surgeon R A Boermel in the forenoon of 11th October 1913

CAPTAIN F H SALISBURY IMS, made over charge of the Dacca Central Jul to Captain G Hollovd, IMS, on the forenoon of the 20th October 1913

The services of Major A. Gwyther, IMS on leave are placed at the disposal of the Director General, Indian Medical Service, with effect from the 9th November 1913

Major J W F Ratt, Ins., Superintendent, Campbell Medical School and Hospital, Scaldah with effect from the 1st September 1913, to act as a Civil Surgeon of the second class and is posted to Hooghly until further orders

Motor R P Wilson, I ws, Civil Sungeon, Rayslachi, is appointed to act as Superintendent of the Campbell Medical School and Hospital, Scaldah during the absence, on deputation, of Major J W F Rait, I ws, or until further orders

CIVII ASSISTANT SURCEON JATINDEN NATH GUPTA, Comille, is appointed, until further orders, to hold medical charge of the civil station of Tippera, with effect from the 16th September 1913

M 1301 H B FOSTER, I M S, Police Surgeon and Piofessoi of Medical Jurispiudence Medical College, Calcutta acted as Superintendent, Campbell Medical School and Hospital, Scaldah, in addition to his own duties, from the 1st to the 23rd September 1913, both days inclusive

THE services of Lieutenant Colonel H W Pilgiim, IMS, Surgoon Superintendent Presidency General Hospital, on leave, are replaced at the disposal of the Government of India in the Home Department with effect from the 10th October 1913, pending retrienment

LIFUTENANT COLONFI F O'KINEALL, I MS, Officiating Surgeon Superintendent, Presidency General Hospital, is confirmed in that appointment with effect from the 10th October 1913, tice Lieutenant Colonel H W Pilgrim, I MS

CAPTAIN A H PROCTOR, I WS, Officiating Civil Surgeon, Serampore, is appointed to act as Civil Surgeon, Hooghly, in addition to his own duties, with effect from the forenoon of the 30th October 1913

Major J W F Rait, IMS, Superintendent, Campbell Medical School and Hospital, Sealdah, is allowed privilege leave for one month and twenty two days, under article 260 of the Civil Service Regulations, with effect from the afternoon of the 30th October 1913, or any subsequent date on which he may avail himself of it

On being relieved of his appointment as Officiating Super intendent, Campbell Medical behoof and Hospital, Scaldah, Major R P Wilson INS, is placed on general duty at the Medical College Hospital, Calcutta, for one day, it, the 30th October 1913

Myor R P WIISON INS, on general duty at the Medical College Hospital is appointed to act as Superinten dent, Campbell Medical School and Hospital, Sealdah, during the absence, on leave, of Major J W F Rait, INS, or until further orders

On relief by Honormy Captain Churan, Mi R A Hollingsworth is appointed to be Civil Surgeon Insein and Hanthawaddy Districts (excluding the Syriam Municipality), in place of Senior Vilitary Assistant Surgeon and Honormy Captain J F Goldsmith, who is retring from the service

His Excellency the Governor of Bombay in Council is pleased to make the following appointments

Captain H S Hutchison, B sc (Glasgow), MB, IMS, to act as Professor of Physiology, Histology and Hygiene, Grant Medical College, Bombay, during the absence on

leave of Major L T R Hutchinson, M P. B ( (Cintib) D P H (Cantab), I M s, or pending fuither orders

Minor J H Horton, deco. MB IMS to not as Personal Assistant to the Surgeon General with the Government of Bombay

CAPTAIN M S IRANI, I MS, to do duty as Civil Surgeon, Sukkur

Assistant Surceon R S Poredi, i w & s, to act as Civil Surgeon, Bijapur

His Freellency the Governor of Bombay in Council is pleased to appoint Mr S K Figureer, I M & s. L R e i & s. (E), M k e s. to be Honorary Assistant Physician Jamishedji Jijibhar Hospital, Bombay, for a term of one seu

CAPTAIN M S IRANI, I MS, and Assistant Surgeon R S Potedi, I M & S, respectively delivered over and received charge of the Bijapur Prison on the 15th October 1913, after office hours

CAPTAIN M A KURFISH, IMS, and Captain F R Coppinger, IMS, respectively delivered over and received charge of the Aden Special Prison on the 8th October 1913, after office hours

MAJOR A W OVERBECK WILGHT, INS, Superintendent, Luntic Asylum, Agia, privilege leave for one month, with effect from the 2nd October 1913

LIEUTFNANT W J COPRIDON, ISME, Deputy Superint tendent, Lunatic Asylum Agia, to hold charge of the duties of the Superintendent of the Asylum, in addition to his own duties, rice Major Overbeck Wright, granted leave

PRIVILEGE leave for three months, in combination with furlough for one year and five months, and study leave for three months and twenty nine days under Articles 233 (1), 260 303 and 308 (b), of the Civil Service Regulations, and Rules 2 or 6 of the Study Leave Rules, is granted to Major N R J Rainier, MRCS, DPH, IMS, Civil Surgeon Saugor, with effect from the date on which he may be relieved of his duties.

Order No. 1930 dated the 24th September 1912 is beach.

Order No 1939, dated the 24th September 1913, is hereby cancelled

Two months and seven days of the nine months' study leave granted to Major P F Chapman, MI, CM, IMS, Civil Surgeon, by Order No 487, dated the 7th March 1912, has been converted, by His Majesty's Secretary of State for India, into furlough

MAIOR W E MCKFCHNIE, I WS, Civil Surgeon, on completion of his special duty posted to Etawah

An extension of service up to 22nd June 1916, has been granted to Lieut Col A Willan Dawson, 1 M5, to complete 30 years' service for pension Lieutenant Colonel Dawson entered the service in 1st April 1886, and was advanced to the selected list on 24th June 1911

WE recently commented on the decry of the "Morley doctrine," and we now are able to announce the creation of another new I M S appointment, 112, Civil Surgeon of Sibi, on grade pay plus Rs 200 a month allowance. This is the eighth new appointment this year

ON return from the combined leave granted him by Order No 487, dated the 7th March 1912, Major P F Chapman, M B C M , I M S , Civil Surgeon, is posted to Nagpur The Chief Commissioner is pleased to appoint Major P I Chapman, M B C M , I M S , Civil Surgeon, Nagpur, to be Superintendent, Lunatic Asylum, Nagpur

ON relief by Major P F Chapman, M.P., C.M., IMS. Lieutenant Colonel A. Buchanan, M.A., M.D., M.Ch., M.A.O., IMS., Civil Surgeon, Nagpur, is transferred to Sauger

Under Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Lieutenant Colonel A Buchanan, MA MD, MCh, MAO, IMS, Civil Surgeon, Sangor to the executive and medical charge of the Saugor District Jul

Privilege leave for three months, in combination with furlough for one year and four months and study leave for three months and twenty nine days, under Articles 233 (1),

260, 303, and 398 (b) of the Civil Service Rgulations, and Rules 2 and 6 of the Study Lerve Rules, is granted to Major N R J Rainier, MRCS, DPH, IMS, Civil Surgeon, Saugor, with effect from the date on which he may be relieved of his duties

On the termination of his training at the Kasaun Institute, Captain W J Flasel, M B, Ch B, F R C S, I M S, Officiating Civil Surgeon, is reposted to the Chhindwala District

THE undermentioned 3rd Class Assistant Surgeons, laving completed seven years' service in that class and passed the required Departmental examination to be 2nd Class Assist tant Surgeons, with effect from the 21st April 1913 —

Arther Thomas Toppy Hubert Ronald Kelly

The undermentioned 4th Class Assistant Surgeons, having completed five years' service in that class, to be 3id Class Assistant Surgeons, with effect from the dates noted against

Henry Doyle, George Heibert Mason, John Auty Rogers, Herbert Clarence Pownes, 1st September 1913 John Emmanual Reid Heppolette, Anthony Leo Gonsalves,-8th September 1913

### Bombay Establishment

The following promotions are made, subject to His Majes ty's approval

Senior Assistant Surgeon and Honorary Lieutenant Alfred Devine, to be Senior Assistant Surgeon, with the honorary rank of Captain and let Class Assistant Surgeon Peter Hyacinth Rodrigues, to be Senior Assistant Surgeon with the honorary

to be Senior Assistant Surgeon, with the honorary ank of Lieutenant,

vice Senior Assistant Surgeon and Honorary Captain J
Amor, deceased, with effect from the 9th August

The following extract is published for general informa tion

" London Cazatte," dated the 9th September 1913, page 6419

India Ofice, September 9, 1913

The KING has approved of the admission of the under mentioned gentlemen to the Indian Medical Ser vice as Lieutenants on probation

Salub Singh Sukhey, M B Atul Krishna Sinha, M B Subiamanya Doraisamy James Findlay, MB James Finary, M. B.
Allan Seddon, M. B.
Joytish Chandra De, M. B.
William Collis Spackman, M. B.
Nanalal Maganlal Mehta Charles Hury Powel Alien
Charles Hury Powel Alien
Peregrine Stephen Brakenbury Langton
Robert Morrison Easton, M B
Reynold Victor Martin

Dated 26th July

CAPTAIN R E WRIGHT, MB, IMS, is appointed to the Bacteriological Department substantively mo tempore from the 17th April to the 12th September 1912

CAPTAIN J A CRUICKSHAK, M B, I M S, is appointed to the Bacteriological Department substantively pro tempore with effect from the 19th March 1913

THE services of Captain E C Hodson, INS, are placed temporarily at the disposal of the Government of Madias

The services of Captain S J Bhathena, Indian Medical Service, are replaced at the disposal of His Excellency the Commander in Chief in India

CAPTAIN G. R. LIMN, M.B., I.M.S., Officiating Medical Officer, lith Lancers, is appointed to officiate as Health Officer and Civil Surgeon of the notified area, Delhi, in addition to this own duties, with effect from the 3rd June 1913, during the abserce on leave of Lieutenant Colonel W. H. Ogilive, M.B., I.M.S., or until further orders

MAIOF A E J LISTER, MB, FRCS, IMS, is appointed to be Professor of Physiology at King George's Medical College, Lucknow, with effect from the 1st October 1913

MATOR E E WATERS, I MS, acted as a Civil Surgeon of the first class from the 8th to the 31st August 1913, during the absence, on leave, of Lieutenant Colonel E A W Hall,

MAJOR C A LANT, I MS, Officiating Civil Surgeon, Dar jeeling, is appointed to act as a Civil Surgeon of the first class, with effect from the 1st September 1913, during the absence, on leave, of Lieutenant Colonel E A W Hall, IMS, or until further orders

CAPTAIN W D H STEVENSON, IMS, Assistant to the Director, Bombay Bacteriological Laboratory, has been granted such privilege leave of absence as may be due to him on the 4th October 1913, or on subsequent date of relief, in combination with special leave on nigent private affairs for such period as may bring the combined period up to six months together with study leave for seven months more,

THE Hon'ble Surgeon General II W Stevenson, CSI, IMS, is gianted furlough under military rules from the lst November 1913, or the subsequent date of relief, to the 10th January 1914, both days inclusive

MAIDE L T R HUTCHINSON, M D. PC (Cantab), D P H (Cantab), I M S. Professor of Physiology, Grant Medical College, is granted one year's furlough on medical certificate from the 15th November 1913, in combination with the College receives companying from the 1st October 1912. College vacation commencing from the 1st October 1913

LILUTENANT COIOCEL J B SMITH, MB, MCh (RUI), DPH (Cantab), IMS, continued to hold charge of the Lundic Asylum, Poona, from the 1st to 12th June 1913, both days inclusive

MAIOF H A F KNAPTON, IMS, is granted, from the 15th October 1913, or the subsequent date of relief, privilege leave of absence for three months in combination with furlough for nine months

UNDER the provisions of Article 260 of the Civil Service Regulations, privilege leave for 15 days is granted to Captain T F Owens, I M S, Chemical Examiner and Bacteriologist to the Government of Burma, with effect from the 23rd October 1913, before noon

October 1913, Defore noon
Maung Them Kin, FCS, First Assistant to the Chemical
Examiner and Bacteriologist, Burma, is appointed to
officiate as Chemical Examiner and Bacteriologist to the
Government of Burma in place of Captain Owens proceeding

DR F A FOY, MB, CM, DPH, Port Health Officer, Rangoon, has been granted by His Majesty's Secretary of State for India an extension of leave on medical certificate

MAJOR H A J GIDNEY, I MS, Civil Surgeon, Naga Hills, is deputed to Delhi for a course of training at the Malaria

THII D CLASS Military Assistant Surgeon A E Mathews, in medical charge of the Mokokchang subdivision in the Naga Hills, is appointed to officiate as Civil Surgeon of that district during the absence on deputation of Major H A J

THIRD grade Civil Assistant Surgeon Muhammad Ali, L V there grade Civil Assistant Surgeon Munaming An, L y & s, in charge of the Main Dispensary, Seoni, is appointed to officiate temporarily as Civil Surgeon, Seoni, in addition to his own duties, vice Major V H Roberts, I M s, officiating Civil Surgeon, transferred to Chanda

Major E J Morgan, INS, Civil Surgeon, Sitapur, privilege leve, combined with furlough, on inedical certificate, for a total period of six months

MAJOR J N WALKER, IMS, Civil Surgeon, Aligath, on being relieved, privilege leave, combined with study leave and furlough, for a total period of one year

CAPTAIN H P COOK, IMS, whose services have been temporarily placed at the disposal of this Government by the Government of India, to be employed on plague duty in the

MAJOR H C BUCKLEY, I MS, Officiating Civil Surgeon, on leturn from leave, to Bulandshahi

Madras, 18 due out from 15 months' leave, on 8th December 1913.

CAPTAIN W R J SCHOCCIF, IMS, has been granted 2 cars and 15 days' leave and is not due out till end of May

CAPTAIN D S A O'KFEFFE IMS, has been granted 15 months' leave till 9th November 1914

MAIOI A GWITHFP, IMS, MB, FRCS (Ed.), has been placed on special duty to study leprosy at the Leper Asylum at Purula and will join there at end of his leave

MAIOF TH DETAN, FRCS INS, Civil Surgeon of Saran, is allowed combined leave for thirteen months, itz, privilege leave for three months under Article 260 of the Civil Service Regulations, and study leave for the remaining period under Rule 6 of the Study Leave Rules, with effect from the 9th November 1913 or any subsequent date on which he may be relieved of his duties

CAPTAIN F P CONNOR FRCS, IMS, is, on leturn from leave, appointed to act, until further orders as Civil Surgeon of Suan

MAYOR D. McCAl, IMS, Professor of Physiology and Officiating Professor of Materia Medical Medical College, Calcutta, and Second Physician to the College Hospital is granted privilege leave for two months and five days under Articles 260 and 271 of the Civil Service Regulations combined with furlough on medical certificate for a total period of seven months, with effect from the 1st September 1913

MAJOR E E WATERS, W.D., I M.S., is appointed to officiate as Professor of Materia Medical Medical College, Calcutta, and Second Physician to the College Hospital, during the absence on leave of Major D. McCay, M.D., I M.S., or until further orders

The undermentioned 2nd Class Assistant Surgeons, having completed seven years' service in that class, to be 1st Class Assistant Surgeons, with effect from the 17th September 1913 -

William George St John Hussey Supernumerary, 1st Class Walter Arthur Chifford Netscher Charles Mullins
Donald Day Stewart
Hugh Norman Stewart Hugh Norman Stewart

THE undermentioned 2nd Class Assistant Surgeons, having completed seven years' service in that class, to be 1st Class Assistant Surgeons, with effect from the 17th September 1913 -

Robert George Ives Claude Cyril Kelly

THE undermentioned 3rd Class Assistant Surgeons, having completed seven years' service in that class and passed the required departmental examination, to be 2nd Class Assistant Surgeons with effect from the 27th September 1913 —

Hubert Felix De Penning Stanislaus George Smyth Lionel Vivian O'Brien Easdon William Hugh Maher Hermann Frank Otto

THE following accelerated promotion is made, subject to His Majesty's approval

Captain to be Major

Richard Ernest Lloyd, M B ,-29th July 1913

Army Department Notifi-tion No 282 dated the eation No 28 7th April 1911

Army Department Notification No. \$22, dated the 20th September 1011

WITH reference to the notifications quoted in the margin, the promotion to the present iank of Major Come Hudson, DSO, FRCSE, published in Army Department Notification No 85 dated the 3id February 1911, is ante-dated from the 25th January

1911 to the 28th July 1910

THE services of Major R B B Foster, MP 1MS, are placed permanently at the disposal of the Government of Madias

THE services of Lieutenant Colonel H W Pilgrim, MB, FRCS, IMS, are replaced at the disposal of His Excellency the Commander in Chief in India, with effect from the 10th Colone 1012 October 1913

Myor F S C Thompson IMS, Superintendent new Presidency Jail is allowed combined leave for two years, 12, privilege leave, under Article 260 of the Civil Service Regulations for three months, with effect from the 9th November 1913, or any subsequent date on which he may be relieved, and furlough for the remaining period, under Article 308 (b) of the Regulations

MAIOR W G HAMILTON IMS, Superintendent, Dacca Central Jul, on leave, is appointed to act as Superintendent, new Presidency Jul, during the absence, on leave of Major S C Thompson, I Ms, or until further orders

CAPTAIN F H SALISBURY, M B, I MS, Officiating Superintendent, Central Jul, Duccy, is granted privilege leave for three months and special leave for the same period in continuation, with effect from the 20th October 1913

The services of Captain G. Holroyd, M.B., IMS, are temporarily placed at the disposal of the Government of United Provinces for employment in the Jul Deputment

MAIOR J H BUGO, DSO, Indian Medical Service (Bengal) an Agency Surgeon of the 2nd class, is posted on return from leave as Agency Surgeon, Baghelkhand, with effect from the 25th September 1913

CAPTAIN J ANDERSON, IMS, has been posted as Civil Surgeon to Meranshah

CAPTAIN L CROSSLY, I M s , has been granted 6 months' leave

CAPTAIN H B STFFN, IMS, has been promoted Major, with effect from

Major I M Woolfry, IMS, has gone to Dacco as Superintendent of the Central Jail

MAJOR W G RICHARDS, INS, is posted to Madias

CAPTAIN OWEN BIPKFIFY HILL, I MS, is transferred from Lahore to Bombay

# Motice

Scientific Articles and Notes of interest to the Professior in India are solicited Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to The Editor, The Indian Medical Gazette, clo Messis Thacker, Spink & Co , Calcutta

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### BOOKS, REPORTS, &c. RECEIVED -

Lt Col L Rogers, IMS, Calcutta, Surgn Genl Sir C P Lukls IMS London, Lt Col D G Crawford, London, Lt Col E A B Newman, IMS, (alcutta, Major T H Delany, IMS, Chapta, Lt-Col R H Maddox, IMS, Ranchi, Lt Col W Jennings, IMS, Bombai Lt-Col Browning Smith, IMS, Iahore Lt Col E C Hare, IMS, Ranchi Major Kenrick, IMS, Nagpur Lt-Col W B Lane, IMS, Nagpur, Di O Bulloch, Travancore, Majoi Munro IMS, Jalpalguri Lt-Col C C Barry, IMS, Rangoon, Dr A Castellani Colombo Mr S Paget, London, Capt Hay Burgess, IMS, Darjeeling, Capt Crawford Boyd, IMS, Deoli

### LETTERS, COMMUNICATIONS, &c , RECEIVED FROM -

System of Ophth Imic Practice Pyle, Blakiston & Co
Lohmann's Disturbance of Visual Functions J Bale Sons & Danielson
Major Bryson's Indian Lunacy Manual, 3rd Ed Thacker, Spink & Co
Drew's Invertebrate Zoology, 2nd Fd W B Saunders & Co
Radasch's Elements of Histology Henry I rowde and Hodder &
Stoughton

Prescriber's Pharmacopæa, 2nd I'd Henry Frowde
Stitts Practical Bacteriology and Bloodwork II L Levis Price

Trotter's Finbolism and Thrombosis, Camb University Press
Webster's Diagnostic Methods Blakiston & Co
Parkes and Kenwood's Hygione, 5th Ed H L Lewis